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AMERICAN GAS JOURNAL

Established 1859

APRIL 1935

Contents

	Page
As the Editor Sees It..... The Holding Company Bill	9
The Man with the Wrench—And How He Helped in Building Up Sales—John J. Stapp	15
Safety Pilots—Their Design and Performance—J. A. Leighton	17
Gas Pressure Controls—Erick Larson.....	20
Making the Service Application a Record of Importance—H. J. Johnson	23
Discovering the Employee as a "Hidden" Asset in Load Building—James E. Humphreys	27
Gas The Ideal Fuel—Dorothy Shank	29
The Customers' Index Rate—George H. Joy.....	31
Gas For Modern Refrigeration	
What Gas Refrigeration Has Done for the Gas Industry—Ronald A. Malony	32
Why Gas Companies Like A.G.A. Refrigeration Campaigns—J. J. Quinn	33
Getting Your Money's Worth—In a Gas Refrigeration Window Display—Stuart Bratesman	37
Successful Selling:	
Unique Milk Test Used to Sell Gas Refrigeration.....	39
Rental Plan Triples Water Heater Installations	41
"Heat With Gas" Says Public Service In Successful Campaign	43
Combination Range and Automatic Storage Water Heater Sale	43
Laclede and St. Louis Dealers Cooperate.....	45
Book Reviews	50
Distribution Conference Program	52
Equipment News	54
Personals	56
News of the Gas Industry	58

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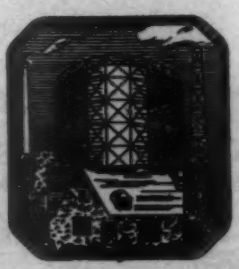

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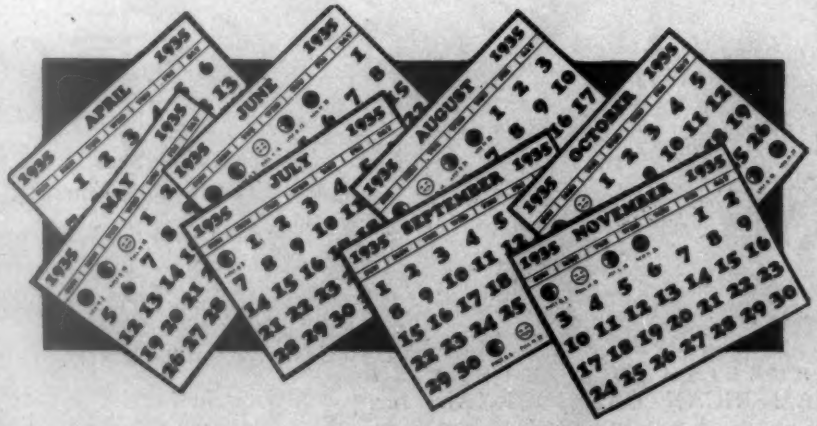

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AS THE EDITOR SEES IT

The Holding Company Bill

THE Rayburn-Wheeler Bill for the destruction of utility holding companies has brought forth probably a greater storm of protest than any other administration measure in recent years. "Protests are coming in by the hundreds to members," says Speaker Byrns. "The bill has created more talk this session than anything else." Dr. Hugh S. Magill, President of the American Federation of Utility Investors, is "reliably informed that more than a half million letters and telegrams have been received by Congressmen protesting the passage of the Rayburn-Wheeler Bill."

Indignation ran high from the outset. Perhaps the lines in Congress began to waver. In any event, on March 12th the President sent a message to Congress requesting the speedy passage of utility legislation and condemning alleged propaganda against it. The reaction was immediate. Angry remonstrance from both the public and the press followed the publication of this unusual message. "Sentenced Without Trial," "Two Kinds of Propaganda," "The Right of Petition" and "Rayburn Utilities Bill Would Wreck Twelve Billion Dollar Industry—For What?" were the titles of a few of the editorials in the daily press. Many security holders, who had not really credited their own executives' warnings up to that time, saw clearly the malign purpose of the Administration; and Congressmen received a fresh flood of protests.

THE JOURNAL has consistently maintained that if abuses exist in the operation of financing of holding companies they should be corrected. *Proper regulation, in our opinion, will accomplish this as well or better than the proposed destruction; and we have thus far failed to find any responsible statement or attempted proof to show that such is not the case.*

The Administration is bound by a solemn oath to support a Constitution which guarantees democracy and the equal protection of the laws to all citizens. Why then this unnecessary and destructive proposal which would wipe out millions of innocent investors? The Committee of Public Utility Executives can find only one answer,— "a nationalized system of government ownership and operation." In other words, socialism would replace our present democracy.

"On any other assumption," says the Committee, "the bill is a confused aggregation of inconsistent and conflicting powers and authorities granted to three different and non-coordinated federal commissions with overlapping jurisdictions.

"If its real purpose is the destruction of the (utility) industry in private hands and the substitution therefor of a nationalized industry, it is ably drawn. This legislation, if enacted, taken in conjunction with existing powers of other federal agencies, could bring about such a nationalized system with startling rapidity.

"The following steps in this program have already been taken during the past two years:

1. The federal government builds huge and totally unnecessary power plants, the output of which cannot possibly be marketed for many years to come in the districts in which they are located.

2. It charges much of its investment to reclamation, flood control or navigation, exempts its property and operations from taxation and other governmentally imposed costs which private business must bear, carries no insurance, fails to set up adequate depreciation, calculates interest at less than private capital can borrow money for and calls the result a "yardstick" which it leads the public to think represents the fair cost of service, which of course it does not.

3. It provides federal funds through PWA or otherwise to build competing distributing systems or to force the sale, under duress, of existing systems at less than value.

4. It sets up government holding companies, such as the TVA with merchandising and other subsidiaries and with supervisory departments corresponding to the central service organizations of private operation, to engage in the production, transmission, distribution and sale of electricity in competition with existing enterprises owned by its citizens."

At this point the recent testimony of Mr. Marriner S. Eccles, Governor of the Federal Reserve Board, before the House Banking and Currency Committee is of profound importance. He said:

"The government cannot, under capitalism, compete with private business without socialization of whatever field of business it undertakes to enter.

Builders of Our Country
Their savings, entrusted to this Company from the pioneer days of the industry, have made possible our contribution to the progress and development of the communities we serve.
We hold fast to our old standards of loyalty to the public, to our workers and to our shareholders.
Think it over, Uncle Sam!
THE UNITED GAS IMPROVEMENT COMPANY
1882—THE OLDEST PUBLIC UTILITY HOLDING COMPANY IN U. S. A.—1935
Courtesy U. G. I. Co.

When the government exceeds its regulatory power and enters into competition, private investment in the field stops and it must be absorbed by the government." Mr. Eccles, it will be recalled was appointed to his present position by President Roosevelt.

The Committee of Public Utility Executives feels that the further coordination of the socialistic program is to be provided by the Rayburn-Wheeler Bill in the following manner:

1. By making practically all electric utilities common carriers, thereby providing a way to use the facilities of its private competitors, without their consent and on terms of its own making, for the delivery anywhere in the United States of its own governmentally produced power, or gas, as the case may be, even to present customers of the companies whose property it uses.

2. By establishing its federal commissions, as the source of all effective regulatory authority over the private companies with which it is engaged in unfair competition. The wide and all embracive definition of "interstate" operations leaves practically nothing for the present state regulatory commissions or other local authorities to regulate.

3. By ordaining that its own operations, in competition with the private companies whom it regulates shall not, in any way, be subject to such, or any, regulation.

4. By destroying existing privately owned public utility holding companies and thereby any hope of financial assistance to the operating companies by which the latter might live through the necessary period of adjustment to the new and drastic conditions to be imposed on them, so that the bankruptcy of most of the operating utility companies would appear inevitable.

5. By providing that if, as a result of such unfair dealing by a government with its own citizens, or if for any other reason, a public utility operating company shall become in the opinion of the government's regulatory agent, insolvent, then said regulatory agent may place said utility company in bankruptcy and said regulatory agent shall be appointed by the Court the sole trustee in bankruptcy for the company.

Many Congressmen may not recognize the full purport of this legislative monstrosity. It is our duty to make them recognize it and continue to make them recognize it, and make our stockholders and customers recognize it.

If socialism is the aim, then this is but the first step and every private industry and every investor in corporation securities, of every kind and description, should rise up and oppose the Rayburn-Wheeler Bill with the same vigor as the utilities.

COMMENTS OF THE PRESS

The Philadelphia (Pa.) Inquirer
March 13, 1935

Sentenced Without Trial

Public utility holding companies, in which millions of thrifty American citizens have invested their life savings, were convicted by President Roosevelt without a trial. He has now sentenced them to death on the very eve of the presentation of their defense pleas before a House Committee. By arbitrary judgment, which defies logical analysis except on grounds of fanatical obsession, the President has pronounced the decree of annihilation not alone upon a gigantic sector of the industrial corporate structure, but upon the security of innumerable investors.

In his message to Congress calling for passage of the Wheeler-Rayburn bill to obliterate utility holding companies President Roosevelt reveals that he, and he alone, is responsible for the campaign of sabotage which his Administration has directed against the utility companies. His protestations of determination to shield and protect investors are strangely at variance with his utterly ruthless campaign against their savings.

Wiping out the holding companies, the President asserts, "will not destroy a penny of actual value" of the operating companies. Has the President recently inspected the day-to-day prices of utility stocks? They have been steadily on the decline since he and his allied group of industry-wreckers began their destructive crusade upon this one isolated industry. How can he in good faith insist that the holding companies must go, and the operating companies stay, when he surely must understand the financial inter-relationship of the two? As in his TVA experiment, he is shaking the governmental fist at operating as well as holding companies.

The President is shocked that holding companies in the shadow of the axe have organized a mass protest against extinction. This, he thunders, is nothing less than propaganda. What about the activities of Senator Wheeler, Representative Rayburn and other members of both Houses who have rallied their cohorts against the holding companies? Are they not propagandists? What about the flood of Government publicity concerning TVA's lying yardstick for power rates? Is that not propaganda? What about this particular Presidential message to Congress? It is nothing less than a White House lobby in support of one bill. More than that it is a vehement propagandist declaration aimed at the bill's opponents, the owners of those same companies which are condemned to death.

An Administration that has rammed down the throats of helpless taxpayers tons of propaganda to win support for its NRA, AAA and all the rest of a hysterical alphabet should not protest if stockholders resort to propaganda, on a comparatively unorganized scale, to protect the money which they saved by thrift and self-denial to invest in tax-paying, wage-paying industry as insurance against illness and old age.

President Roosevelt must know that utility holding companies can not divest themselves of their properties without dumping many of them on the market at tremendous loss. He must realize the practical impossibility of such a break-up short of total destruction. His insistence that "if we could remake our financial history in the light of experience certainly we should have none of this holding company business" is beside the point. It might be argued as soundly that if we could remake our political history in the light of the last two years the present Administration would not be in power.

There is no need here to defend utility holding companies. They exist. They represent the savings of millions of Americans. If there have been holding company abuses there should be correction, but correction does not demand annihilation. Philadelphia long has been proud of its soundly managed U. G. I., a holding company. What is the "tyrannical power" behind holding companies, which the President denounces, as applied to U. G. I.? Is it the 100,000 stockholders who own the company? Is it the almost 40,000 women who are among its shareholders? Is it the insurance companies which own 184,390 shares of its common stock, or the educational, charitable and religious organizations which own thousands of shares? The holding companies, as well as the operating companies, are owned by the people. It is against the people that the Administration is conducting its holding company warfare.

The incontrovertible fact is this: If President Roosevelt or the Government of the United States can destroy one industry or part of one industry by arbitrary action, based upon an obsession, any or all industries can be destroyed on the same illogical grounds. It so happens that the utility industry is the first to feel the major blow. What industry will be next?

The Roosevelt Administration's uncontrolled wrath against the utility companies is driving it upon a course which, devoid of the principles of justice, is a threat to all industry, to all business, to all investors. It is un-American. It is indefensible in any code based upon common ethics and governmental integrity.

(Times-Union, Albany, N. Y.)
March 21, 1935)

Rayburn Utilities Bill Would Wreck Twelve Billion Dollar Industry—For What?

The President's message to Congress, on the regulation of public utility holding companies, suffers by comparison with the report of the National Power Policy Committee which he at the same time transmitted.

The latter, in recommending Federal legislation on this subject, proceeds with becoming sobriety, in strong contrast with the President's tone, to add that "such legislation should eradicate disclosed abuses, prevent the use of the holding company to obstruct State regulation of operating companies and make possible the elimination of the holding company, where it serves no useful and necessary purpose, WITHOUT DISLOCATION OF INVESTMENT OR THE LOSS OF OPERATING ECONOMY."

That there have been glaring abuses in the utility business which have centered largely around the holding companies is now known of all men.

The Hearst newspapers were the first to uncover these abuses, and the most unsparing in their denunciation.

They must be eliminated. Their recurrence cannot be tolerated.

But in view of all that American industry has suffered from needless and destructive assault by New Deal theorists, the sapping of the vitality of business and the decline in its recuperative energy, we think it is time to approach even the high duty of "reform" with some regard to the patient's survival.

Let us turn from the vindictive and rather empty generalizations of the President's message—we cannot believe he wrote it, it is so unlike him—and take a look at the Rayburn Bill, which is the subject of the message.

THE BILL IS AN ATROCITY.

It takes the control and management of privately owned properties out of the hands of their owners and puts them in the hands of Governmental departments.

It takes all the effective regulatory authority away from the States and vests it in Federal Commissions.

It deprives the owners of these properties of all authority, initiative and independence in handling their own properties.

It reaches into the jurisdiction of the Federal Courts and seeks to usurp their power, DEPRIVING THEM OF THE RIGHT TO REVIEW THE MERE EDICTS of loosely constituted and political Commissions.

These Federal Commissions are clothed with complete power of management, but without any managerial responsibility.

It sets up a nationalized system of Government ownership without bothering with the formality of acquiring ownership, and with no regard to the injustice of destroying honestly created, honestly acquired and honestly owned private property.

Claiming to exempt the operating companies from the effects of this violent assumption of ownership and control, it ignores the fact that the bonds of the affected operating companies, as well as their preferred stocks and other securities, would never be able to maintain their values.

There would result a demoralization of the entire electrical industry, which would be unable to obtain funds for maintenance or extensions; an extension of Federal bureaucratic control to an extent that the people of the United States have never sanctioned nor envisaged and an APPALLING ENLARGEMENT OF THE FEDERAL BUREAUCRACY AND PAYROLL.

It would be the most significant step the United States could take toward the eventual socialization of all its industries.

And why this ill-timed and high-tensioned slam at a great industry which despite its abuses is one of the great achievements of our generation?

It is a business that spends, under normal conditions, two billion dollars a year in wages and the purchase of materials; employs one million people, furnishing support for many times that number; and has already, in the period of the slump, voluntarily expended a billion dollars on new construction in an effort to arrest the depression.

It represents twelve billions of dollars contributed by ten million small investors, who have thus made possible a vital public service, unexcelled in the world, to over one hundred millions of our people.

Let there be regulation—Government control, if need be. If we cannot regulate efficiently, we cannot operate efficiently.

The discovery of a localized abuse, however, should not be the signal for industrial suicide and the massacre of useful capital.

There is a rising public resentment, as B. C. Forbes warns in a recent article, against these constant "anti" activities in Washington. The people, he maintains, want results and not everlasting recriminatory and punitive exertions on the part of the Administration.

"Unless the Administration," says he, *"can so co-operate with business and industry as to bring about better conditions and more employment, no amount of denunciation and no multiplicity of 'reforms' will much longer satisfy."*

Another eminent economist, Professor Lewis Haney, of New York University, writing in the New York Journal, says of this newest onslaught of the New Deal upon business:

"What a mockery it is to overthrow the powers of the State, destroy private property without compensation, and assail the pleas of helpless investors and employes as 'propaganda'—all in the name of 'traditional American independence.'"

Such utterances reflect the unmistakable temper of our people. Let the Administration make no mistake about it!

The people want to conserve and build, not tear down and destroy.

They want recovery, not an endless chain of bootless vindictive reprisals—for the past.

They have no sympathy with the processes of destruction, whatever guise they wear, or the mutilation of a great American industry, to gratify the obsessions of theorists and visionaries.

Their goal is recovery; employment for the unemployed, sustaining and real work, not made-work; self-support—and not everlasting relief and the absorption of endless losses suffered at the hands of the Government.

The people are tired of "reform" fizzles like the NRA, well described as the National Retardation Act.

They don't want another fiasco—another pile of wreckage—even if it is called "holding company reform."

The Sun, New York, N. Y.,
March 14, 1935

Two Kinds of Propaganda

President Roosevelt's denunciation of propaganda, as employed in an effort to save the holding companies, is spirited and in the style of a man who thinks that he is absolutely right and that any opposition is either wicked or foolish. No doubt his charge is well founded that in some cases the holding companies have induced their stockholders to denounce the more drastic features of the Wheeler-Rayburn bill; self-preservation is a law of nature that has not yet been repealed. Yet many protests that come to *The Sun* from utility stockholders show signs that they are not chain letters. Some are scrawled in haste and anger; some reflect grief and despair. Many are badly done. The writers have had to provide their own stationery and postage.

In striking contrast is the propaganda of the Roosevelt administration defending and applauding its alphabetical agencies and its socialistic schemes. Only yesterday *The Sun* received from the Farm Credit Administration a neat pamphlet of sixteen pages and as many illustrations describing the beauties of the FCA. It would be a farmer with a heart of stone who could read it and refrain from obliging the government with an application for a loan. This document is printed and mailed at the expense of the taxpayers. It must not be called propaganda, for that is a name to be applied to the arguments of persons so unspeakably vile as to wish to retain some shreds of their invest-

ments. It is "publicity" when Washington sends it out.

Remember that when you send your income tax check to the Collector today or tomorrow and reflect that a bit of your contribution will be used for printing the arguments of an Administration which resents similar action on the part of utility stockholders.

Jackson, Miss., Daily News,
February 14, 1935

The Larger Viewpoint

If you are one of those moronic-minded persons who believes that in order to rebuild it is first necessary to destroy everything within view of the prospective new structure, you will not enjoy this editorial, so quit reading right now and turn over to the funny page.

However, if you happen to believe that wholesale destruction is not essential to reconstruction, there may be herein said something of interest to you.

There is now pending in Congress several bills seeking to destroy all holding companies directly or indirectly having an interest in public utilities.

These bills were written by men who believe in legislating first and litigating afterward—men who care not even one small continental cuss about that precious document we call the Constitution of the United States.

The measures pending are just a part of the utterly senseless and thoroughly idiotic plan to destroy the public utilities of the nation that are privately owned.

Within the past year addle-pated agitators have succeeded in destroying substantial utility property values amounting to more than two billion dollars, and still they are not satisfied. . . .

It is not necessary to destroy holding companies in order to prevent a recurrence of the abuses of which they have been guilty.

Many of the abuses complained of have already been corrected. The average business man, big or little, is inherently decent. Bring him face to face with the mistakes he has made and he will make an earnest effort to remedy them. . . .

Salem, Mass., News,
February 25, 1935

"Comes Down to Question of Fact"

A number of heads of utility companies have been conferring with the President and other government representatives, and presumably efforts are being made to reach some adjustment of the controversies between the government and the power and light companies. The "New Dealers" complain that there have been great abuses in the utility industry. And according to utility advocates, these abuses have been exaggerated, and if the companies were given the same advantages that the government plants will have, such as light taxes, the private companies could sell power for the government figures or even less.

These controversies come down largely to questions of fact. These facts should be ascertained by impartial inquiry. The most serious abuse claimed against the utility companies, is that they are, as a whole, overcapitalized and the people are forced to pay interest and dividend on watered securities. Similar claims were made 20 years ago about the railroads. The government undertook to establish a valuation for the railroads, a process which it was claimed would cost only about $3,000,000. The government up to some time ago, had spent $40,000,000 on that valuation, and the railroad companies had spent $145,000,000, and after all that, it was found that most of the railroads were worth more than capitalization. It would probably work out in the same way on many utilities. But it is probable that there has been over-capitalization of many utilities, and in so far as that wrong exists, it should be corrected.

When the government establishes a publicly operated plant, it should always pay a fair price for the existing plant. If, under threat of competition, it should force such a company to sell its plant for less than its real value, it would greatly abuse its power, and deprive banks, insurance companies, and private investors, of property to which they are justly entitled.

Chicago Daily Tribune
March 5, 1935

Irresponsible Legislation

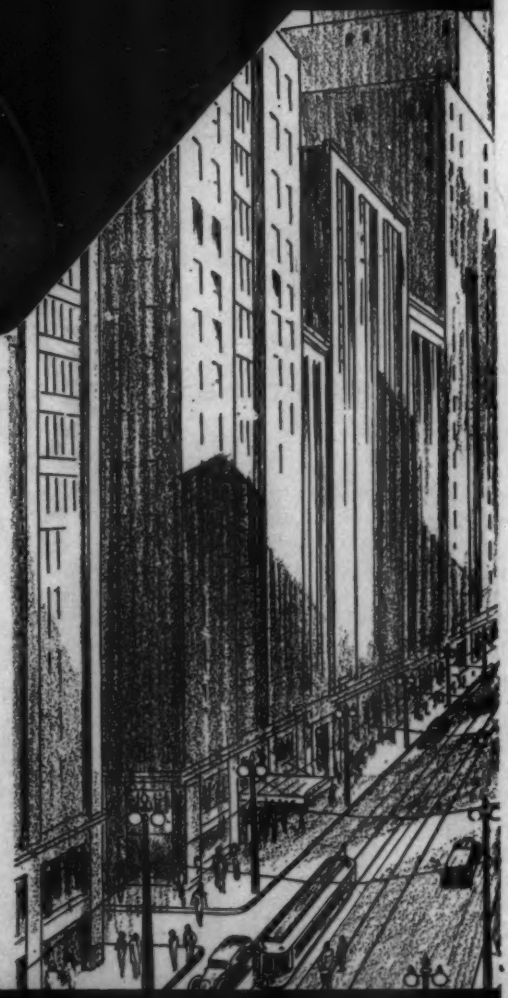
The president of the American Federation of Utility Investors, Dr. Hugh Magill, drew attention the other day, in a statement at Washington, to some facts deserving the most serious consideration of congress. That they will get it in that quarter is not as certain as it ought to be. It ought at least to get it from the American people. His subject was the Rayburn-Wheeler holding companies bill, a measure purporting to remedy evils with which the holding company has been charged.

Dr. Magill asserts, and he is a man not given to reckless statement, that investors in utility stocks have suffered personal losses since the bill was introduced of $92,800,000. "If the mere introduction of this bill," Dr. Magill inquires, "has thus destroyed values to the extent of about one hundred million dollars within two weeks, what would be the effect on values in the forced liquidation that would follow enactment?" Losses to utility holding company stocks alone have amounted to fifty-four million, and Dr. Magill remarks that the passage of this bill, eliminating the holding company after five years of regulation, would in fact eliminate the investor.

There is no objection to judicious restraint upon proved abuses of the holding company device, but there should be intelligence and responsibility enough in congress to frame a corrective measure which does not do more harm than good. The effects of the drastic measure now before congress, as Dr. Magill points out, have already reached millions of citizens, whose lawful interests it is the duty of congress to regard and protect. They are the forgotten men, women, and children who either as direct investors or as the beneficiaries of life insurance and other trusts, have been and will be the innocent victims of reckless legislation.

Congress should pay more heed to its responsibility for the defeat of influences pretending to devotion to the public weal, but in fact regardless of it. The measure criticized by Dr. Magill, himself a citizen of unimpeachable character and a lifetime of disinterested public service, is an expression of blundering prejudice and demagogy, which purporting to be aimed at recognized abuses scatters its fire like a gangster in flight. It is an outstanding example of the harm being done in the name of reform to the practice of thrift, industry and foresight among our people, qualities upon which the welfare and progress of the nation and all its citizens is and must always be founded. Directed ostensibly at inordinate and unscrupulous wealth, such legislation is crushing the millions of people whose modest savings are the foundations of our country's prosperity and the bulk of its wealth. It is a process of wholesale destruction which congress has permitted to go too far and which it is one of its prime duties to arrest.

GAS MAINS AT THEIR BEST!



THERE is no field where the superior qualities of high-grade steel pipe, and of NATIONAL Steel Pipe in particular, make it more definitely to be preferred than in the gas industry. No other pipe material will yield the Gas Company greater safety, efficiency, and economy. No other pipe material can be used with greater satisfaction and profit. Check the advantages and the reasons are clear enough. Specify NATIONAL for assured performance under the shocks and pressures of modern service. Write NATIONAL engineers for further information.

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Carbureted Water Gas
Manufacture

Gas Cooling and
Condensing

AMERICAN GAS JOURNAL

APRIL 1935

The Man With the Wrench

And How He Helped in Building Up Sales

By JOHN J. STAPP

WITH the threat of Boulder Dam competition imminent, the Gas Distribution Department of the Los Angeles Gas and Electric Corporation, Los Angeles, Cal., last year carried forward load-building activities never before attempted. The result showed in the sale of more than $200,000 worth of gas appliances by metermen or about $900 per man. The Los Angeles Gas and Electric Corporation does not sell appliances direct to the customers; this tremendous figure represents the number of appliance sales by dealers traced exclusively to the activities of the Distribution Department.

The problem of educating, inspiring, urging and pushing all metermen into a position where the Distribution Department would no longer be merely a service department, where the man with the wrench would be an overall-ed super-salesman, was successfully solved by W. M. Henderson, Superintendent of Gas Distribution. His methods offer timely and practical evidence of the value of metamorphosing the meterman into a more attractive form of meterman-salesman.

The program falls under two divisions, educational activity and inspirational activity. Both are of equal importance in the picture of load-building through the meterman, and to both sections Mr. Henderson brought a number of new and worth while developments.

Some New Educational Developments

The American Gas Association Course in Gas Appliance salesmanship was utilized as a starting point in the educational development, readapted to meet existing needs. Mimeograph machines were then put to work turning out these as pages in a sales manual for each man.

Realizing the supreme importance of meterman education, the educational activities were very largely carried on during company time. This represented a total of more than 15,000 man hours, paid for by the Department. Of this total, about 5,000 man hours were devoted to the A. G. A. Salesmanship Course. In addition to the man hours paid for by the utility, metermen signed up for various courses in a night school conducted by the Employee's Association. Inspiration was, of course, the factor relied upon to turn out what proved to be a record enrollment for this school.

A departmental cooking school was perhaps one of the most outstanding new ideas used. The metermen received a total of 912 hours of instruction, on the utility's time, in the gentle art of baking a better cake, and the idea was prolific of results. Many and varied instances were reported showing how the metermen had made satisfied gas customers through actually teaching the housewife how to bake.

While all of the metermen are not seasoned cooks, some have a better aptitude for the cookery work than others, and all are now in a position to both answer questions and demonstrate successful methods. This is a matter of supreme importance, since many women expect their new

ranges to perform miracles (in keeping with much of the national advertising matter of range manufacture). Consequently, when the range fails, the gas is blamed and not the cookery methods, and thus is sown the seed for another potential electric range prospect. The meterman can overcome this by making it a point to inquire concerning the housewife's satisfaction whenever a new range is seen in the home. This is a rule of the Department.

LOS ANGELES GAS AND ELECTRIC CORPORATION
810 SOUTH FLOWER STREET
MICHIGAN 0141

APPLIANCE PROSPECT CARD—NEW BUSINESS DEPT.

DATE _____ 193__

DEALER _____ CUSTOMER _____

ADDRESS _____ ADDRESS _____

THE ABOVE CUSTOMER HAS BEEN LISTED AS A PROSPECT FOR _____

GAS RANGE	
WATER HEATER	
ROOM HEATER	
GAS FURNACE	
ELECTROLUX	

REMARKS: _____

SUBMITTED BY: _____

DEALER'S REPORT

WE SOLD THE FOLLOWING APPLIANCES: _____

WE COULD NOT SELL THE PROSPECT FOR THE FOLLOWING REASONS: _____

DATE _____ 193__ DEALER _____

Form 901 7 31 34 1M

Adjusting the High Bill Complaint

A total of 240 hours were given to high bill education. Metermen take care of the high bill complaints, and while so doing are enabled to turn up numerous prospects for new appliances—since they meet customers face to face in every instance. In working out the high bill complaint for better salesmanship, the following program is used:

Each meterman is required to carry a supply of four pamphlets; one on ranges, another on space heaters, the third, gas refrigeration, and a water heater pamphlet completes his stock. When investigating the high bill complaint, he has an opportunity to hand the customer one of these pamphlets suitable for the occasion. The pamphlets were drawn up by means of an effective method. Metermen submitted their conception of what should go into such literature and these ideas were utilized in developing the advertising. The result has been that the meterman is tied in directly and feels a greater personal interest.

Each pamphlet has one outstanding phrase. Metermen were then educated in how to bring this phrase home to the customer as a transition from service to selling. This same procedure is followed at every customer contact, and last year the metermen distributed over 50,000 pieces of advertising matter, each being followed by a sales talk in which they had been well trained.

The meterman then fills in an Appliance Prospect Card, which goes to the dealer. The reverse side of this card is notable for a report which the meterman makes immediately after the contact. It keeps him from turning in anything but live prospects, for it questions him closely concerning such knowledge, as: "Do you *know* (or is it your opinion) that the prospect is financially able to purchase? (Based on some voluntary remark or statement)," "Did the prospect *state* a desire to have a dealer call?", etc.

A Non-Bonus System

The startling fact about this sales program is that not a single bonus is paid. Henderson does not believe in the bonus system, stating that the tendency under such an arrangement is to force sales above everything. Further, the meterman will tend to turn in unwarranted leads and forget his position as the utility's customer-maker in an effort to become a load-builder only.

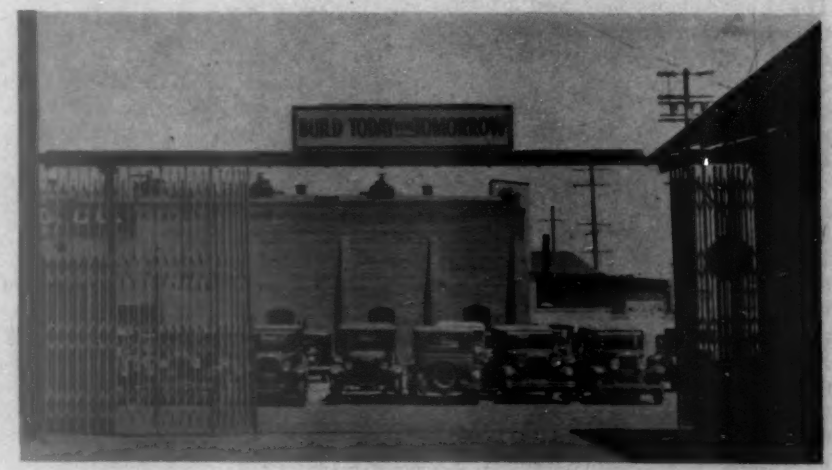
For bonus, therefore, inspiration has been substituted. This begins with a fundamental conception of the meterman's place in the utility. Henderson points out to the men that their job is their capital—that to increase it they must increase need for their services. This point is driven home to metermen constantly in various ways; for example, the Gas Distribution Department publishes a six-page mimeographed newspaper, "The Gas-ette," and this is used to educate the men to the importance of their work in the utility's picture.

Slogans

Sloganeering is another strong factor in the inspirational development of the metermen. One slogan is kept before them at all times. To date, the following slogans have been used: "Did you get your prospect today?", "Build today for tomorrow" and "Serve to Sell Service." The latter slogan was selected from a slogan contest in which every meterman participated. Unity, incidentally, is stressed throughout the entire Distribution Department by such means. The slogans are then used in a number of ways: They are made up into stickers for the windshield of every truck. they are painted on large boards over the exit gates, they appear at strategic points about the Department.

Actual rewards are made in two ways: Pay raises and transferring metermen to the sales department of the utility. The hope of becoming a salesman is constantly held before

(*Continued on page 40*)



Safety Pilots—Their Design and Performance

By J. A. LEIGHTON
American Gas Association Testing Laboratory

AUTOMATIC devices designed to prevent escape of unburned gas play an important part in the successful utilization of gas as a fuel and in the sale of gas appliances. An increasing demand for more convenience with a minimum of personal supervision of domestic gas appliances has resulted in many such appliances being regularly equipped with automatic control accessories.

During recent years several different types of these devices have appeared on the market and it is reasonable to suppose that as their utility and the protective features become more apparent, many new models will be offered for sale. While appliance manufacturers now find numerous makes and styles available to choose from, they are also confronted with the problem of making a proper selection to suit their particular needs. Despite the recognized importance of automatic devices designed to prevent the escape of unburned gas, a minimum of information appears to have been published which would assist manufacturers in judging the characteristics of these devices. It is intended in this article, therefore, to discuss various features of some of the more common type safety devices and present several standards of performance and construction which may serve as a guide in their examination.

Heretofore recognition has been given to these and other accessories only in a secondary way through their attachment to appliances submitted to the American Gas Association Testing Laboratory for approval. In 1930 the National Gas Appliance Manufacturers' Association petitioned the Approval Requirements Committee to devise a program whereby recognition could be extended to accessories as such through the development of construction and performance standards for them. After a thorough study of the matter committees were appointed which have been engaged since that time in drafting requirements of this nature. Among those recently completed is a very comprehensive set of Listing Requirements for Automatic Devices Designed to Prevent the Escape of Unburned Gas.

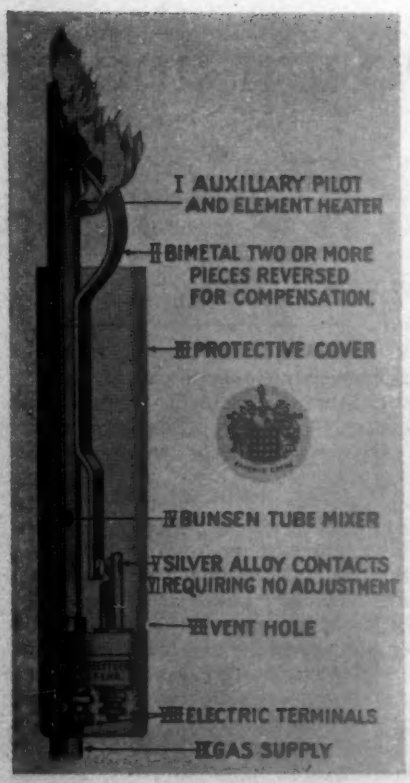
Devices, often referred to as safety pilots or thermostatic pilots, have one fundamental duty to perform, namely, to shut off the main gas supply to burners or appliances from which, for any cause, unignited gas is liberated. This basic assignment must be done not only with a minimum delay but also without failure under many adverse conditions. Devices of this character should also possess several other characteristics which will be discussed later.

Essentially, safety pilots consist of (1), a gas valve controlling the main gas supply (it may or may not control the by-pass gas supply to an ignition or constant burning gas pilot); (2), an actuating element dependent on a constantly burning gas pilot for its source of energy, and (3), a linkage mechanism by means of which the actuating element transmits its energy to control the gas valve. Valves of this type require no description as they are of a conventional design used with other well known control accessories. The distinguishing feature of most safety devices is the principle employed in the actuating element. There are three types of these thermal elements commonly employed, which may be classified as (1) bimetallic, (2) rod and tube, and (3) liquid or bomb types. A fourth type which has recently appeared on the market and which seems to have considerable possibility of success might be designated as the "differential" type.

Bimetallic elements (See Fig. 1) consist of a laminated strip of two

Courtesy of Patrol Valve Co.

Fig. 1. Safety Device Actuated by a Bimetallic Type Thermal Element


I AUXILIARY PILOT AND ELEMENT HEATER
II BIMETAL TWO OR MORE PIECES REVERSED FOR COMPENSATION.
III PROTECTIVE COVER
VI BUNSEN TUBE MIXER
VII SILVER ALLOY CONTACTS REQUIRING NO ADJUSTMENT
VIII VENT HOLE
IX ELECTRIC TERMINALS
X GAS SUPPLY

Courtesy of the Lee B. Mettler Co.

Fig. 2. Safety Device With Dual Bimetallic Element

metals each possessing different coefficients of thermal expansion. These two metals may be laminated together by such means as riveting, welding, or by an intimate fusion process. When this element is heated it bends and by fixing one end, the other is forced to move, this motion being imparted through the linkage mechanism to the valve. An interesting use of the properties of such material is made in a snap disc principle which will be described later under valve mechanisms.

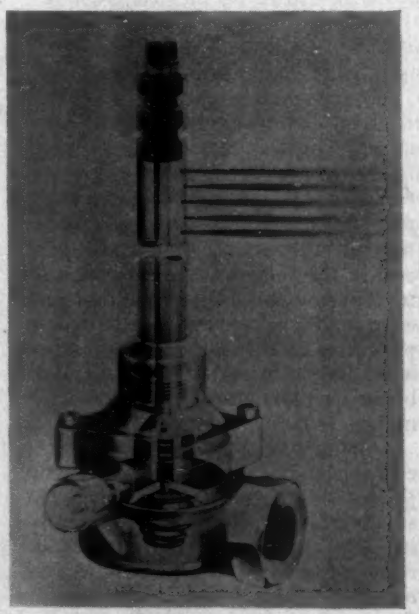
Another modification of the use of this principle is obtained by attaching two bimetal strips together at one end to make a continuous element. (See Fig. 2). One section curves in a certain direction under the action of the pilot while the other bends in the opposite direction. In other words, one section acts as a compensator, the action of which is determined by the temperature in the combustion chamber below the burner. The other section, which is the upper one with the element in a vertical position, acts as a safety pilot. A dual safety feature is thus provided.

Bimetallic type elements have also been adapted for use in conjunction with diaphragm valves. In such devices, the element acts as a trigger release for the diaphragm valve, which is in turn actuated by the gas supply pressure. As long as the pilot keeps the bimetal hot, it remains in a position holding the valve open. The trigger on this device must be "cocked" by hand each time it is placed in operation.

Rod and tube type thermal elements depend on the relative expansion between a concentric rod and tube. The tube, usually a material with a high coefficient expansion, is securely attached to the body or main housing of the device and contains a non-expanding (extremely low coefficient of expansion) rod which is connected to the valve directly or indirectly through an appropriate linkage. In order to accelerate the action of the device this linkage may be highly multiplied or of the snap-acting type. In addition to increasing the valve motion, these multiplying linkages also afford a greater mechanical advantage. Figure 3 illustrates the application of the rod and tube type thermal element in conjunction with a snap disc type valve mechanism.

An adaptation of the rod and tube principle has been made by incorporating the burner and safety device feature in one assembly. Such a device is shown in Fig. 4. In this device the heat of the burner flames, after the pilot has been placed in operation by a manual by-pass, expands the outer tube containing the burner ports, while the inner rod does not expand, thus permitting the valve to remain open.

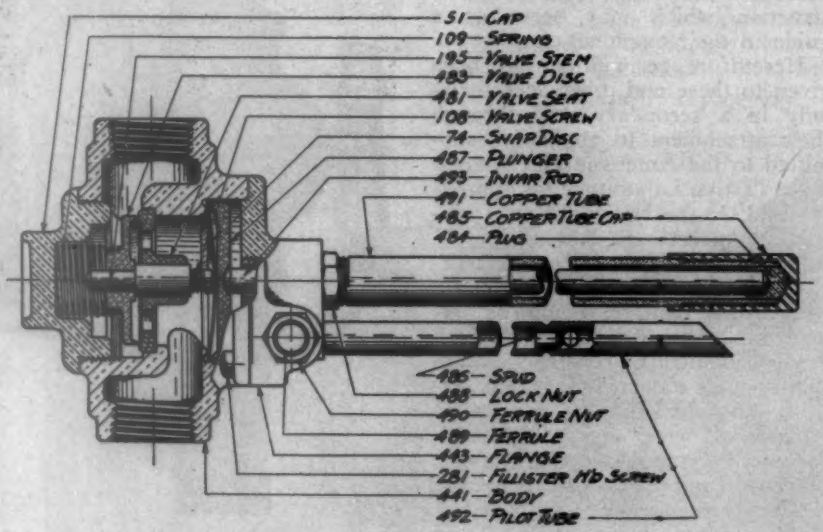
Liquid or bomb type elements consist of a container possessing a high tensile strength and a high degree of conductivity inside which is hermetically sealed, a volatile fluid of high vapor pressure and low heat of vaporization. This type of element usually is made in one unit integral with a bellows connected to the liquid bomb or coil container by a small tube. Thermal expansion of the fluid results in an extension of the bellows, motion of which is directly or indirectly transmitted to the valve. This last type of element is illustrated in Figure 5. The expanding fluid is contained in a coil at the left of the photograph and is heated by a pilot flame venting up through the chimney-like tube. The unit at the right contains the bellows which actuate a push rod controlling a valve.



Courtesy of The Welsbach Company

Fig. 4. Rod and Tube Type Element Integral With Gas Burner

A principle similar to the liquid type thermostat employs gas as the thermal expanding fluid and in place



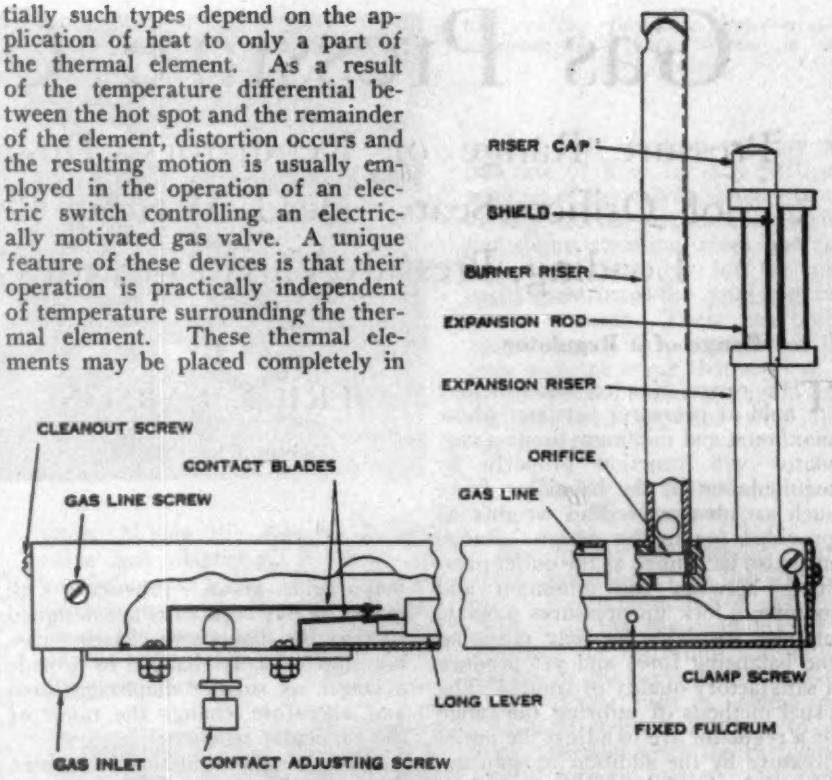
Courtesy of Grayson Appliance Co. Ltd.

Fig. 3. Rod and Tube Type Element

of metallic bellows, a snap disc is used. This device is placed in operation manually by setting the disc in the necessary position of curvature. Application of heat causes the gas to expand and holds the disc in the position corresponding to the open position of the valve. Removal of the heat source permits contraction of the gas and the disc under its own stress then snaps into a position corresponding to a closed valve.

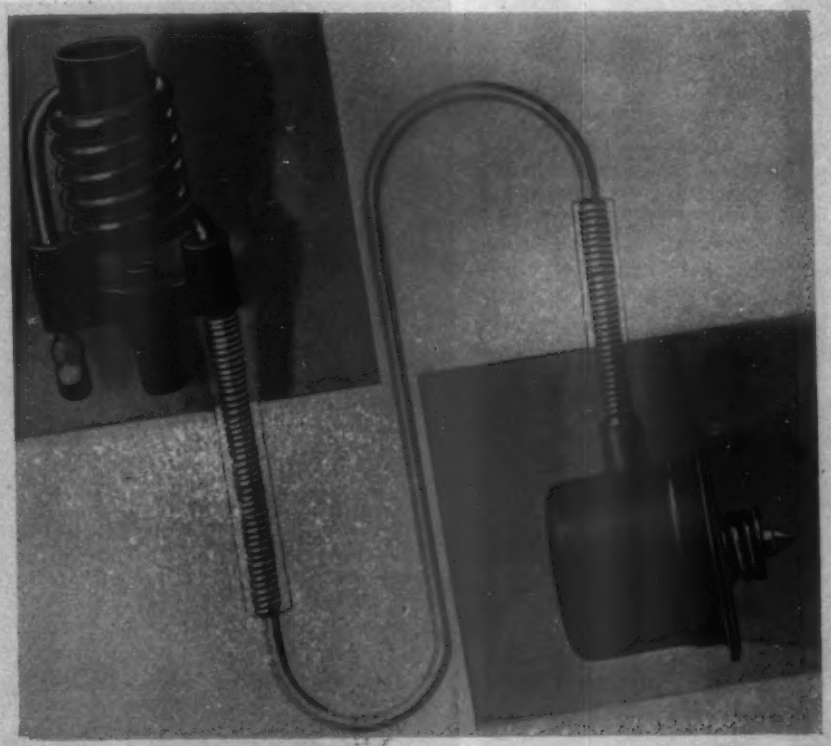
Fluids in this kind of thermal element may be liquid, vapor, or gaseous, or a combination of these phases may be employed. Liquid CO_2 or SO_2, ether, water and various organic hydrocarbons have been used for such purposes. Argon and mercury are also used with success. Thermal elements of this type are of advantage because they permit flexibility in locating the valve body mechanism and thermal element. Heating of the main valve assembly and linkages is avoided and deleterious action on the mechanism due to heat is reduced. Excessive lengths of tube connecting element and body of the device should be avoided, however, as greater lengths are more subject to change in adjustment.

A fourth design, which has been classified as a differential type, depends for its action on local heating of the thermal element. At present several of these devices manufactured by different concerns have been introduced on the market. Essentially such types depend on the application of heat to only a part of the thermal element. As a result of the temperature differential between the hot spot and the remainder of the element, distortion occurs and the resulting motion is usually employed in the operation of an electric switch controlling an electrically motivated gas valve. A unique feature of these devices is that their operation is practically independent of temperature surrounding the thermal element. These thermal elements may be placed completely in the combustion chamber without the existing temperatures there, affecting the performance of the device, thus eliminating the necessity of remote pilots and complicated ignition and flame travel systems.



Courtesy of Surface Combustion Corp.

Fig. 7. "Differential" Type Actuating Element for Safety Pilot



Courtesy of American Gas Products Corporation

Fig. 5. Liquid or Bomb Type Element for Safety Device

Two examples of this latter type of device are shown as Figures 6 and 7. In Figure 6 the principle is applied in actuating an electric switch which in conjunction with an electric valve, controls the gas supply. The pilot flame acts on the metallic horse-shoe to bring together its open ends, thus closing an electric circuit. Figure 7 shows a similar application but by a different mechanical design of element. The expansion rod is thermally shielded from a duplicate rod to its right so that application of the pilot flame causes the former to expand more than the latter, motion thus being produced.

It is, of course, to be noted that many variations and combinations of the above principles may be employed. Several other types of thermal elements should also be mentioned here, among which are those depending for motivation on electrical conductivity of gas flames, photo-electric cells or "eyes," and thermocouples. An example of the latter type is shown in Figure 8. In this device the pilot flame heats a thermocouple which generates ample electrical energy to actuate a magnetic gas valve. Another device has recently been introduced which depends on a thermal expansion ele-

(Continued on page 48)

Gas Pressure Controls

Pressure Range of Regulators, Description and Uses of Orifice Seats, Dead Weight Balancing, Spring Loading, Pressure Variation with Changing Load

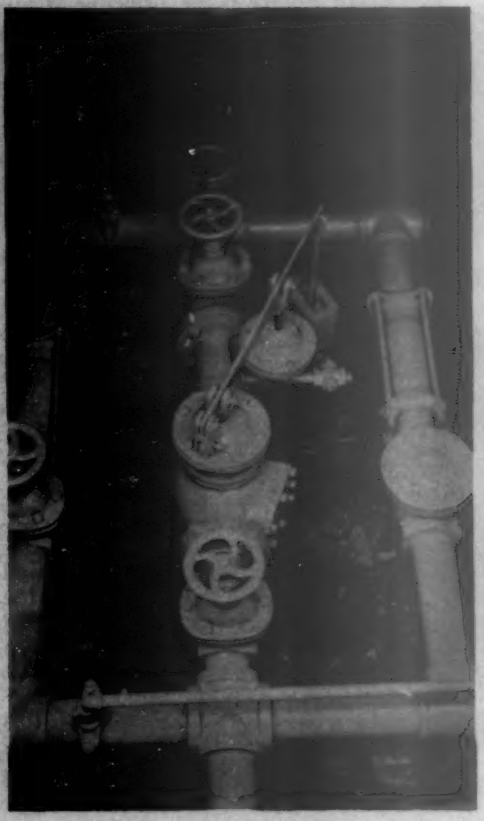
By
ERICK LARSON
GAS ENGINEER

Range of a Regulator

THE range of a regulator is that field of pressures between whose maximum and minimum limits a regulator will function properly by manipulation of the balancing force such as springs or dead weights as provided for in the design. Range may also be defined as the outlet pressures between the minimum and maximum lock up pressures possible on any regulator by only changing the balancing force and yet produce a satisfactory quality of control. The usual methods of utilizing the range of a regulator are to adjust the outlet pressure by the addition or subtraction of dead weights and is limited by the physical strength of the diaphragm, the number of weights which can be added, the compressibility of the spring, the pressures available for pressure or pilot loading or changing diaphragm areas. Practically all makes of line regulators are designed so that the diaphragm chamber casing may be easily changed to provide a larger or smaller diaphragm area and, therefore, change the range of the particular regulator.

While single regulators have been designed to control inlet pressures up to as high as 500 lbs. to outlet pressures as low as five pounds the range is only slightly affected by large increases of inlet pressure, range being a function of a regulator entirely distinct from the differential pressure between inlet and outlet.

It is desirable especially on old and converted systems to have much lower pressures during the off peak seasons. If the range of pressure between that desired during the peak season and the off peak season is large it is often more economical to install two line regulators to provide for the individual seasons than to continually change the diaphragm areas of a single unit. Where the pressure must be lowered during off peak hours the range of the regulator may be increased and the pressure automatically provided by the use of such devices as boosters or loaders which however complicate the regulator adding to maintenance and operating costs and should therefore be used only where the leakage is unusually high or other conditions make lower pressures particularly valuable.



Diaphragm chamber may be conveniently removed from remainder of regulator and changed to another size.

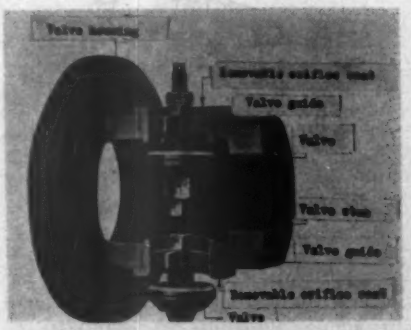
Sliding weight hanger on lever arm.

Slip coupling facilitates replacement of regulator and relieves strains on adjacent flanges.

Orifice Seats

The orifice seat is that part of the orifice which contacts with the valve or valve disc or that part of the orifice which prevents any flow of gas when the valve is closed. Originally all orifice seats were cast integral with the valve housing, later developments added the feature of removable orifice seats to allow for regrinding and the latest progress is a design providing for removal of the valve housing for changing the orifice sizes without the necessity of disconnecting the regulator from the distribution system.

A removable orifice seat is usually secured by the orifice and orifice seat being part of a casting which may be attached to the valve housing. This removable fitting is often termed an orifice bushing. Some orifice bushings provide only the threads as a sealing medium while others have a flange or shoulder on which a gasket or suitable joint compound may be used. The disadvantages of orifice bushings are the difficulties of removing and of securing and maintaining a gas tight joint. On regulators provided with removable valve housings in addition to the orifice and orifice seat, the complete balanced valve and valve housing are removed as a unit. Removable valve housings have the contended advantage of providing the most economical method of changing orifice sizes to secure a high quality of control under variable seasonal load changes. Any considerable change in the orifice size would require a change in the diaphragm size. Many operators prefer to substitute an entirely new regulator and make provisions for a quick substitution by installing a slip coupling usually on the outlet side of the regulator. Where the changes in both valve and diaphragm housings are compulsory at least twice a year especially in the smaller sizes of regulators the costs and advantages of parallel regulators should be carefully compared.

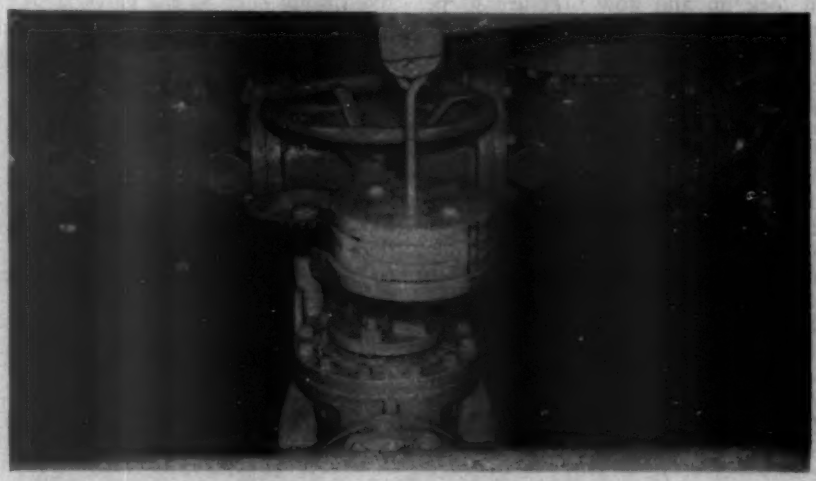


Removable orifice seats facilitate changing orifice for regrinding seat.

Early experiments by manufacturers indicated the advantages obtained by improving flow lines through the regulators. Some of the earlier attempts were the shaping of valve plates as parabolic caps which increased both the total capacity and the rate of flow for any particular position of the valve. Such attempts to improve the stream line received but slight attention from operators and were discarded for the more easily constructed flat types in general use at present. There has been a recent revival in perfection of flow lines with the result that some of the earlier developments are again being manufactured together with slight improvements.

Quality of Material and Workmanship

The quality of material used in regulators depends on the service to which it is to be subjected and, therefore, it is the responsibility of the operator to carefully outline the nature of the service to a manufacturer. Parts such as valves, orifice seats and stems are subject to abrasion especially when the gas contains gritty foreign matter. In general parts must be able to resist friction, abrasion, chemical action and flexure. There is seldom a question of physical strength of the materials as practically all parts are designed from experience both operating and manufacturing resulting in an excess of physical strength in most instances. It is more advantageous to furnish a manufacturer the exact nature of operating conditions and then secure a guarantee that the parts will be of adequate quality and strength than to establish specifications. In general specifications limit the selection of equipment to a few manufacturers where there may be others who are willing to guarantee their product for the service conditions encountered.



Counterbalance weights marked with pounds on each.

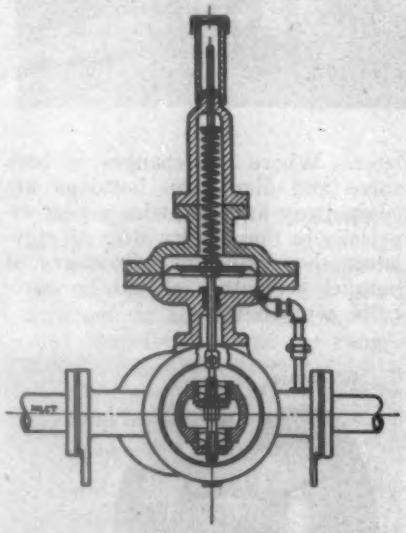
Dead Weight Balancing Force

The weights used as a balancing force on dead weight regulators are usually of cast iron although small lead weights are sometimes used for fine adjustments. However, extremely fine adjustment of line regulators is neither possible nor desirable. The addition of a small weight may change the outlet or lock up pressure a fraction of a pound at the moment that the weight is added but the normal variation in lock up pressure would exceed such fine adjustment. The desirability of such fine adjustment would only be valuable when it improved consumers' service but it is questionable whether a fraction of a pound change in lock up would improve service on the average high pressure distribution system. On those systems which operate with low pressure during off peak periods and medium or high pressure during peak periods a fraction of a pound is often all that is required but this fraction of a pound would be a large percentage of the operating pressure of the regulators.

The usual individual value of the weights used is between 3½ and 4 pounds. The addition of one of these unit weights on the same types and sizes of regulators will usually produce the same difference in lock up pressure and may be considered as indicative of the consistency of operation. Any deviation in the increase of lock up pressure on one of several similar regulators with the addition of a unit weight would suggest that the regulator was not functioning properly and would be the cause of an investigation to determine the trouble.

As the weights are not exactly identical in pounds the marking of each with its actual poundage has facilitated judging the results to be expected. A table or curve may be made up indicating the usual increase in lock up and flow pressure to be expected from the addition of different pounds of weight on the lever arm or weight hanger. Should regular weights be inaccessible any object may be used for a weight and the effect on lock up checked by weighing the selected object. An advantage resulting from predetermining the effect of weights or other counter-balancing forces is that instructions may be given for the addition of a certain poundage at any period of the day when it is impossible to check the lock up pressure and lock up predicted from curves or tables. When this latter method is used it is desirable to check the lock up pressure within a reasonable period or to closely follow the pressures shown on recording charts for a few days as the addition of the weights may result in a momentary but actual increase in the velocity of flow which may be of a sufficient amount to pick up foreign matter and cause damage to the valve or orifice seats.

Comparison of the effect of changes in the counter-balancing forces with charts or tables is only possible on regulators identical in design and dimensions. The practice of attaching weights at any position on the lever



Spring counter-balanced regulator.

arm should be discouraged and repairmen and inspectors encouraged to keep conditions as standard as possible so that comparisons with the operation of line regulators in the same or different territories will not be difficult. Some designs of line regulators provide a sliding weight hanger or sliding weight adding another factor to consider when comparing the effects of weights. To include the distance of the sliding weight hanger or weight from some fixed point such as the valve stem in a table or series of curves would make the table voluminous and curves too numerous for field use. The same condition results when several holes for suspending the weight hanger are drilled in the lever arm. One criteria of the excellence of design and manufacture is the uniformity of the hanger hole spacings and their standard distance from some fixed point such as the valve stem in the same style and size of regulator. Providing such uniformity facilitates studies of comparative performances.

Providing a sliding weight hanger theoretically allows extremely accurate adjustment but as previously mentioned the advantages resulting from the addition of small weights are not always as valuable as having a fixed point for weight attachment so that comparisons of performance may be easily made. Simplification is also increased by having the weight hanger hooked into a drilled hole in the lever arm as less material, casting and machining are necessary than with sliding weight hangers.

Particularly in regulators having auxiliary bowls the desire to minimize the total space occupied often results in the weights touching the adjacent pipe or even body of the regulator. A slight clearance between the weights and any other object eliminates the possibility of the weights being held rigid or friction of the weights against any object changing the counter-balancing force resulting in non-uniform operation.

Weights are usually cast with a slot for convenience in removing or adding weights onto the weight hanger. A bead or raised ring is usually cast on the top of each weight to fit into a corresponding depression in the bottom of the next one mounted. Provision should be made in designing such means of preventing slipping so that the grooves or slots extending into the center may be staggered.

Spring Loading

Spring loading is the use of coiled springs as a substitute for or to augment dead weights as the counter-balancing force. The advocates of spring loading claim as the desirable features the convenience of adjusting a spring as compared to the necessity of having weights available and sensitive adjustment. Convenience is somewhat counteracted by the spring loading device requiring a pressure screw and lock nut with which to make the adjustment and also maintain it. The contention that a sensitive or small adjustment may be made results from the idea that a slight added pressure on the spring would correspond to the addition of a small weight. On certain types of controls especially those having pilot regulators controlling the main regulator, the possibility of making a fine adjustment may justly be claimed as an advantage. Where the regulator used is of the simple type with direct loading the fine adjustment has not the importance it does on more sensitive regulation.

The use of a compressed spring introduces the additional factor of fatigue of metals in that the spring gradually loses compressibility, re-

(Continued on page 64)

Making the Service Application A Record of Importance

By
H. J. JOHNSON
Manager Utility Dept., Remington-Rand, Inc.

This is an introduction to a series of articles by Mr. Johnson on Gas Company Records and Record Procedure and their value from the standpoint of Public Relations and Economical operation.

The Author is well qualified to write on this important Subject as he has devoted the past twelve years exclusively to designing records and record procedure for public utility companies.

His recommendations are based on observations made, and experiences and results secured in more than five hundred individual companies.

A DISCUSSION of How the Service Application May Be Converted Into A Record of Constructive Importance must cover a much broader scope than has generally been thought necessary. The service application must be considered the basis for all future customer contacts as well as the foundation on which all subsequent records are built.

1. Does the service application have any real value?
2. What are the disadvantages, if any?
3. How can the value be increased?
4. How can it be used as the basis for a record of positive and constructive value?

The question of whether or not signed service applications should be used is a subject that has resulted in many conflicting arguments and opinions in almost every public utility organization. As a matter of fact, it has caused conflicting ideas in the minds of individual executives, including even those who have appeared to be the most ardent supporters on either side of the controversy. The principal reason for the wide difference of opinion that has existed is the fact that the real value of service applications has never been properly appraised. The viewpoints that have been advanced have often been very partisan in character. In addition to this, both factions have failed to consider possible modifications in the ordinary procedure which might overcome the recognized disadvantages and still conserve the admitted values.

The advocates of the Service Application have based their arguments almost entirely on its value in connection with the collection of disputed bills.

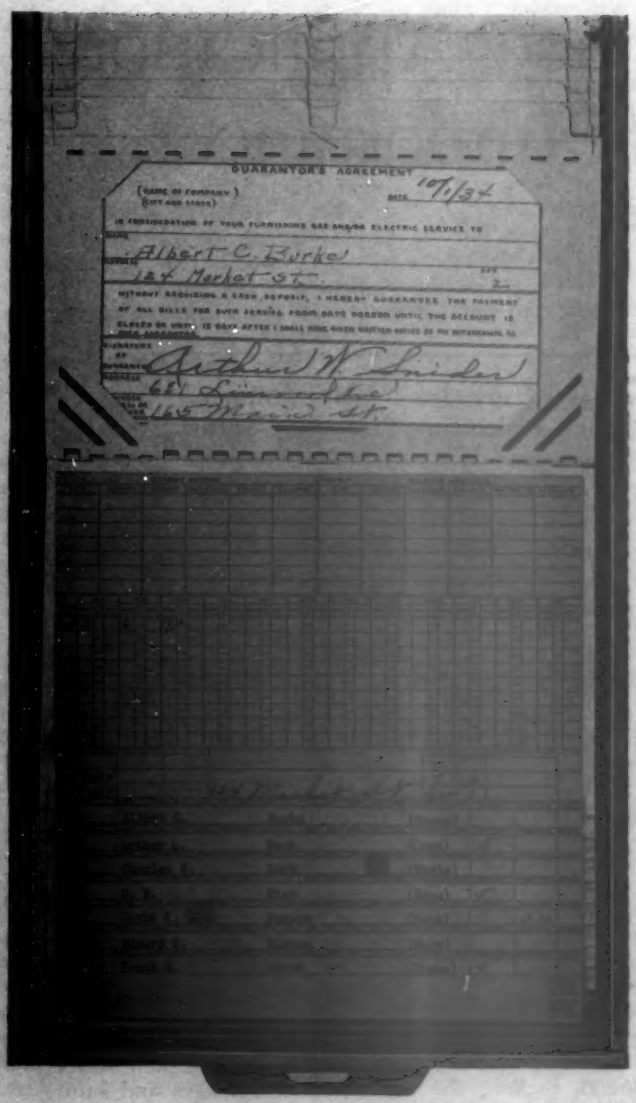
The faction opposing the use of service applications maintains that the company is penalized by unnecessary expense and clerical work through the effort required for checking, handling, and filing of the volume of paper involved. Other outstanding arguments include the annoyance to the customer and congestion during the rush period. These objections are further sustained by the claim that the amounts actually collected through the use of service applications is absolutely inadequate to compensate for these disadvantages.

It must be admitted that a policy which requires a new contract or application for each location does result in a very annoying inconvenience to the customer with the result that it does represent a very definite liability in promoting and maintaining customer good will. It is very difficult for a customer to understand why it should be necessary to sign a new contract and answer the same questions covering personal information that have been asked and answered on one or more previous occasions. It is also true that congestion is decidedly increased during moving periods. The cost and inconvenience which is imposed on the company's operation is equally great. It must also be admitted that the policy of requiring signed applications in cases where the customer may only be moving across the hall or across the street is of decidedly questionable value.

Proper Solution Of Any Problem

It is very obvious that the best solution of any problem or the settlement of any controversy is one which will eliminate all of the objections, either real or imaginary, claimed by one side and still retain all of the advantages and values set forth by the opposite side. The ideal solution would also incorporate additional operating economies and constructive improvements. This would not only satisfy both the advocates and opponents but insure an absolutely successful operation through having the wholehearted support of everyone concerned.

In view of the fact that the service application occupies the basic position, all subsequent records and customer contacts are largely dependent on the accuracy of the information secured at this time. The solution of this problem, therefore, offers an opportunity to consider the refinement and revision of the records and record procedure which represents such an important factor in all future customer contacts and related operations. Every project, if it is to be successful, must be founded on a clear cut recognition of the conditions that are involved and on well defined objectives that must be reached in order to develop the ideal


GUARANTOR'S AGREEMENT

10/1/34

Albert C. Burke
184 Market St.

Arthur W. Snider
68 Lincoln Ave
165 Main St

Fig. 1.

solution. In this instance the outstanding condition which must be recognized may be briefly summarized as follows:

The public relations factor has become increasingly important. It demands most careful attention. All employees who come in contact with the public must be provided with a complete and accurate record of all facts in order to handle every situation which may arise in a manner that will reflect real credit on both the individual employee and on the organization as a whole. A complete history of all these facts develops confidence on the part of all employees who come in contact with the customer and consequently makes them better representatives of the company.

Business conditions have changed. Clerical costs, collection expenses, bad debt losses, and general operating ratios have increased. Net profits have been reduced and the entire public utility industry is faced with the necessity of effecting further economies and increasing general operating efficiency. The adoption of ledgerless bookkeeping has handicapped credit authorization and collection procedure. It has also increased the problem of handling customer contacts.

Vital Objectives

Any record procedure in order to successfully meet the above conditions must be based on the following objectives:

1. To speed up and improve customer service by the elimination of all unnecessary procedure and reduce the time required for reference and clerical operations to an absolute minimum.

2. To promote and preserve customer good will through the ability to deal with the customer on an individualized basis through the use of a complete record covering all previous experience.

3. To reduce clerical expense through the elimination of all duplication of records as well as the reduction of time required for clerical effort and reference.

4. To eliminate errors as well as the complaints that inevitably result from errors.

5. Reduce collection expense and improve collections by establishing a method whereby credit may be authorized or satisfactory credit arrangements made as each application is taken while in contact with the customer either in person or on the telephone. This must apply to both original and subsequent applications. Special attention must also be given to the matter of providing for the handling of all collection activities on a selective basis through establishing a method that will insure the necessary concentration of effort on all accounts which require it and avoid wasting any effort on those accounts on which it is not needed. Final bill collection effort must also be reduced through increasing the number of final bills that are transferred to the customer's new account at a new location.

6. Reduce bad debt losses through insuring satisfactory credit arrangements being made on both the original and subsequent applications and proper collection follow-up while the account is current.

A positive control must also be established which will insure either the transfer of the final bill to the new account or the collection of it whenever a customer returns for service at a later date.

7. Definitely fix complete responsibility for every action in order to avoid the shifting of blame for errors of either omission or commission.

Realizing Objectives

These objectives can be realized only through the use of a complete Central Information File—a Customer History Record—which provides a means of accumulating a complete record of all facts covering the entire experience with each individual customer. This record must be designed to provide exceptionally rapid reference so that it may be referred to during each customer contact, while the customer is in the office or on the telephone. This must be done not only without slowing up service but actually effecting a substantial reduction in the time required for handling applications.

Actual experience has conclusively demonstrated the fact that it is much easier and more satisfactory to make the necessary arrangements with the customer for a new cash deposit, an

increase in an existing deposit, a satisfactory guarantor, or the payment of a previous bill at the time application for service is being made rather than by making a subsequent contact by telephone, mail, or personal call after service has actually been connected.

It is just as important to guard against questioning the record of a good customer's account as to guard against granting any unwarranted privileges to a poor customer. This can only be done through the use of a complete record of the company relations with each individual customer so that all contacts with that customer may be based on a recorded history of complete and actual facts.

The individual ledger sheet was very helpful in connection with credit authorization and collection follow-up but it also was very inadequate because the record of any customer's account was limited to one location. It is an acknowledged fact that it is usually the customer who moves frequently from one location to another who requires the most careful attention because this is generally a definite indication of his stability. For this type of customer the indivdual ledger sheet had very little value. It eliminated very few, if any, of the records that are usually maintained and which may be combined in a complete Customer History Record. These various files and records are listed in a subsequent part of this outline.

Basis for Customer History Record

The Customer History Record in order to be all that its name implies must originate as a permanent service application. The use of a permanent service application not only eliminates the annoyance and inconvenience to the customer together with the resulting adverse effect on public relations but also eliminates all unnecessary expense to the company in the taking, checking, recording, and filing of the individual applications. It is practically impossible to justfy a service application which does not serve any other purpose. If, however, it is used as the basis for establishing a complete Customer History Record, then it becomes extremely valuable from the standpoint as the medium of customer identification through the personal information covering business or occupation, business address or employer, name of husband, of wife, and the customer's signature. On this basis the necessity for taking any subsequent applications as long as this customer continues to use service regardless of the number of places at which service may be used is entirely eliminated.

Design of Customer History Record

The Customer History Record is designed to provide all of the following information and replace any files or records which may now be in use in connection with the various activities and also provide a great deal of information which is not usually available from any existing records.

1. Permanent customers' application covering the current location, and any or all subsequent locations at which the customer may use service, showing the necessary personal information such as references, business, occupation, business address or employer, name of husband or wife, together with complete name and signature.
2. Alphabetic Index.
3. Deposit Ledger.
4. Inactive Ledger.
5. Bed Debt Record.
6. Record of N.S.F. Checks.
7. Record of by-passing of service.
8. Record of unearned Discounts Allowed.
9. Record of Merchandise Sales Contracts.
10. Record of Deposit Interest Payments.
11. Record of Guarantors and Accounts Guaranteed.
12. Record of all Collection Effort and Experience.
13. Record of any appliances repossessed for non-payment.
14. Record of any services cut-off for non-payment of bills.
15. Record of all locations at which customer has been served.
16. Record of any special credit authorizations, complaints, or information peculiar to an individual customer.
17. Complete information for credit authorization on both service and merchandise.
18. Record of customers requiring special attention by the Collection Department.

The combining of the various files and records enumerated above not only effects a big reduction in clerical effort but this factor combined with proper filing provides the speed of reference which is necessary in order to check the record while in contact with the customer, either in person or by telephone. The average elapsed time for telephone communication between the point of contact with the customer and the location of the record and the reference to the record by the clerks does not exceed thirty seconds. This includes allowance of time on certain contacts which require a longer period.

The accompanying reproductions of the Customer History Records

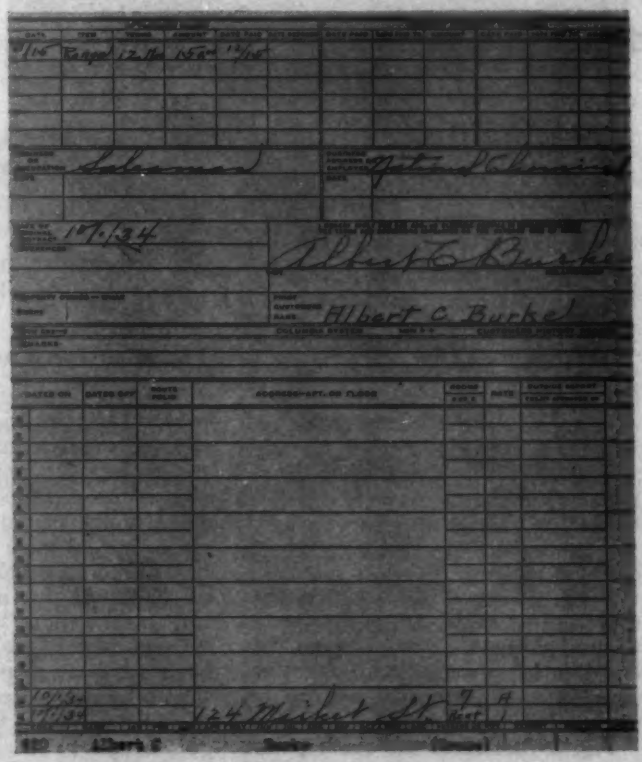


Fig. 2.

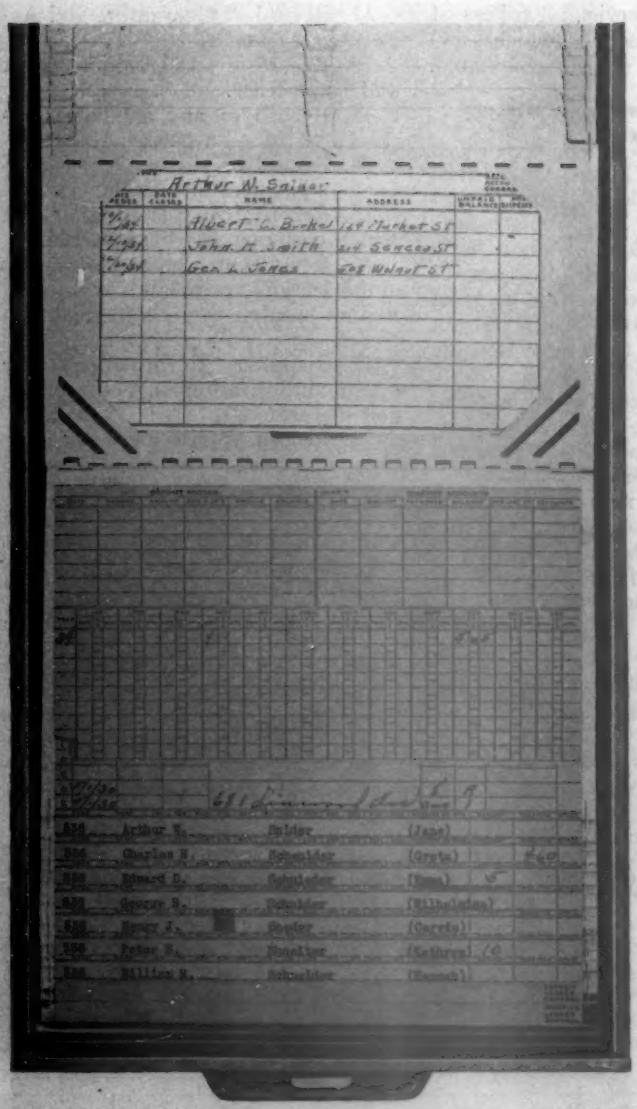


Fig. 3.

illustrates the methods of recording the information as outlined.

Fig. 1 shows the manner in which the deposits and inactive balances appear in the visible margin. This simplifies and speeds up the balancing.

The guarantors agreement is filed with the Customer History Record card for the customer whose account is guaranteed.

The signals show the month that the account became inactive.

Control cards covering both deposits and inactive accounts are filed at the bottom of the tray.

The Customer History Record card is folded.

Fig. 2 shows the Customer History card as it appears when opened up, and covers the same account that is shown in the preceding illustration. The contract is printed on the reverse side.

Fig. 3 illustrates the same points as shown in a preceding illustration except that it shows the Record of Accounts Guaranteed filed with the Customer History Record card for the guarantor. This provides a positive control on all guaranteed accounts in the event that the guarantors account is closed or becomes unsatisfactory.

Facilities for Customer Contacts

This is a subject that is very important and justifies very thorough treatment. It is very vital from the standpoint of public relations. It also offers an opportunity to effect a substantial operating economy and speed up customer service. It will be covered here only from the angle of suggestion that if a complete Central Information File—a Customer History Record—is to be used, then obviously all customer contacts should be centralized. There should be only one place for a customer to go whether he is applying for service, requesting a duplicate bill, making a high bill complaint or asking for any other information.

It is very annoying for a customer to be shifted from one section to another. It is also very difficult for a customer to understand why certain clerks who are idle cannot wait on him. Experience has conclusively demonstrated the fact that the use of desks promotes a greater feeling of friendliness than is possible with counters. Desks also provide more privacy than counters because they can be spaced sufficiently far apart to avoid the complaint of one customer being overheard by another. Clerks who are trained to handle contacts of all kinds acquire a much broader viewpoint of the relationship of various factors and activities which makes it possible to discuss problems with the customer in a more convincing manner. It also provides an unusual opportunity to train clerks for positions of greater responsibility.

Customer Service Desks

Fig. 4 illustrates the use of desks for customer contact purposes. All applications for service, requests for duplicate bills, high bill complaints and requests for any other kind of information are handled by these clerks. Direct connection with every section of the Customer History Record is provided by the use of the Inter-Departmental Telephone Communication Instruments. It is only necessary for a clerk to depress the proper key to establish communication contact with the proper section of the file. When the clerk at the file signals that she is ready to take the call he repeats the customer's name and address. If the record shows a satisfactory condition this fact is communicated by merely flashing a green light. If there is adverse information to be transmitted a red signal is flashed which causes the customer contact clerk to pick up the receiver and listen to the

(Continued on page 46)

Fig. 4.

Discovering the Employee as A "Hidden" Asset in Load Building

By JAMES E. HUMPHREYS
Publicity Director, The Ohio Fuel Gas Company

A RICH widower once asked a man of moderate circumstances how he would like to exchange his wealth for that of the rich man. "Why, sir," he said, "I wouldn't consider it, because you forget I have my family, and it is worth to me far more than your wealth would be."

Many utilities were discovering their families of employees as "hidden assets" for the first time during the depressed business days of the early 30's. With proper guidance, a majority of employees can be made to feel that there is more to their jobs than the specific positions for which they were hired. In some companies, employee activity has become a major factor in creating new business. Such has been the experience of Columbia System's Columbus, Ohio, group of companies.

Realizing the need for employee cooperation in sales and the many advantages that would accrue from it, the Columbus Group started this program March 15, 1932. It was not planned as a short time campaign, but rather a permanent program to last over an indefinite period of time. A feeble attempt along this line had been made in 1929 and 1930, but it was allowed to lapse until 1932, when it was taken up in earnest.

One important decision was made at the outset. The activity would be made a definite part of the personnel program in cooperation with the sales department, but not under the sales department. This settled, a committee was selected to plan an objective and map out a program for reaching it.

This committee was headed by E. M. Tharp, vice president, who then was manager of distribution, and Frank S. Williams, then personnel manager. The original plan was to create such activity only among the ranks of employees in the distribution department.

The permanent name selected for the program was "Every Employee a Business Builder." The work was not to be straight employee selling in the strict sense of the word, but rather to provide a means whereby the employee might uncover and turn in leads which might result in sales. The idea of sales was to be "soft pedalled" and stress laid upon building business.

Mr. E. M. Tharp, vice president and general manager of Columbia System's Columbus, Ohio group of companies. The "Every Employee A Business Builder" program was inaugurated under Mr. Tharp's guidance when he was serving as vice president in charge of distribution.

After the plan was drafted and approved, it was mimeographed so that all employees of the distribution department would be familiar with it. Training schools were held in the subdivisions of the department. A printed booklet of condensed instructions and prospect slips was issued to each employee.

First in the booklet appeared a message from C. I. Weaver, president, indorsing the plan and asking the cooperation of the individuals.

The second part dealt with the objective of the plan and how to find prospects. Some employees contacted the public in their daily work. A good portion of the employees had no public contacts in their regular work. They had to capitalize on contacts through clubs, civic activity, lodges, churches, neighbors and friends, and tradespeople with whom they dealt.

The third subject explained what a prospect is, and how to interest him. A prospect was deemed a person to whom gas service is available, one who has a need for the appliance, and one who is able to pay for it. Suggestions were offered as to how people could be interested in gas appliances and encouraged to commit themselves as to whether or not they were considering buying.

Fourth in the booklet was an explanation of the value of gas. This was a comparison of the cost of performing the different household duties of gas with the cost of doing these jobs with competitive fuels.

Fifth were listed the major selling points for each appliance.

Sixth was a section of prospect slips. These slips were to be filled out as prospects were uncovered, and the slip given to the employee's immediate superior. (An illustration of the front and back of the prospect slip is reproduced.) A stub was filled out in the book as the employee's record.

Briefly, this is the way the plan was designed to operate: Employee fills out slip and hands to immediate superior. From here it is routed through line of authority to the district manager. Then it is sent to the district sales office. This is acknowledged immediately by a letter of appreciation from the salesmanager to the employee. The salesman calls on the prospect and either sells him or reports, after a reasonable length of time, why he can not be sold. The sales department reports back to the employee, through the district manager, that the sale was made or gives the reason why it was not made. If a sale resulted, the employee is awarded a sales certificate (see illustration). These certificates became the coveted possessions of the employees

and meant more to them in achievement over a period of time than cash commissions would have meant.

Let's turn to some figures and see how the plan worked as it was continued, improved, and expanded. When it was started in March 1932, the Columbus Group had approximately 3,000 employees, of whom there were 2,300 eligible to cooperate, either by nature of their work or geographical location. Only half of these, however, were in the distribution department. At that time the company was employing 45 salesmen. During the first two months 3,158 prospect slips were received. Of these, 5.5 per cent resulted in sales, representing 42.2 per cent of all merchandise sold by the company. Without revealing the average amount of each sale, we will say it was $100, as an index.

From this time until fall the number of prospect slips declined. During several weeks in the fall an employees' radiant heater campaign was conducted. This activity increased the number of prospect slips and the percentage of sales, but greatly lowered the average amount of each sale, because radiant heaters cost so much less than most gas appliances.

At this point it is well to explain that the radiant heater campaign did not conform strictly to the "Every Employee a Business Builder" program. This gas appliance requires little technical knowledge of its operation in order to sell. It meets with greater buying acceptance because it is priced lower than other gas appliances. For these reasons, the employees actually make the sales in the case of radiant heaters. In return, they are paid a commission in addition to receiving a sales certificate. Such practice is still followed in the annual fall radiant heater campaign.

Toward the end of 1932 and during 1933, the company carried on a general educational program covering all phases of the gas business. The "Every Employee a Business Builder" program was made a definite part of this course of study. What were the statistics on this activity by the end of 1932? A total of 12,932 prospect slips had been submitted, resulting in 3,048 sales, or 23.5 per cent. The index for the amount of the average sale was $42.28. The sales resulting from employee tips accounted for 32 per cent of the company's business. An even 75 per cent of the distribution employees had earned sales certificates. In addition, 275 certificates went into departments other than distribution.

Mr. Warren R. Sisson, personnel manager of Columbia System's Columbus, Ohio group of companies. He has supervised the development of the "Every Employee A Business Builder" program.

In 1933, Mr. Williams, personnel manager, was promoted to another position with the company and the responsibility for personnel management was vested in Mr. Warren R. Sisson, who had been assisting Mr. Williams and had played an important part in setting up the business builder program.

By this time the practice of paying small commissions had crept into a few districts of the Columbus Group. This was allowed to continue for a while so that comparisons could be made with districts paying no commissions. During the second year employee contests were encouraged within the districts, and small prizes were given to employees doing the best job of business building. Prior to this time the district managers were given points toward the President's Trophy on different important phases in the sales program. In 1933, the employee business builder program was made one of the phases upon which such points could be earned.

Results for the year 1933 showed 18,630 employee prospects, resulting in 4,383 sales, or 24 per cent. The index for the average sale was $66.25. These sales represented 44 per cent of the company's total merchandise business. During this year 85 per cent of the eligible employees had earned one or more sales certificates. Departments other than distribution accounted for 545 sales to employees' prospects.

Two important changes were made during 1934. The program was enlarged to include all departments, which plan is working very satisfactorily. Commissions to employees

Date..... Prospect..... Address..... Appliance.....

PROSPECT SLIP

To .....
(Person to whom this report is made)

Name of Prospect.....

Address .....
(No. and St.) (Town)

Person to Interview.....

Prospect should be interviewed for the appliances checked below:

Boiler	☐	Incinerator	☐
Circulating Heater	☐	Laundry Dryer	☐
Conversion Burner	☐	Radiant Heater	☐
Furnace	☐	Range	☐
Gas Steam Radiator	☐	Refrigerator	☐
Water Heater ☐			

My name { may / may not } be used. I { have / have not } discussed this with the prospect.

(Over)

Front of a prospect slip and stub.

This party is a good prospect because:

.....

.....

.....

.....

.....

This prospect should be interviewed by the Sales Department (give exact or approximate date).....

.....

Signed:

Employe's Name.....

Department .....

Location .....

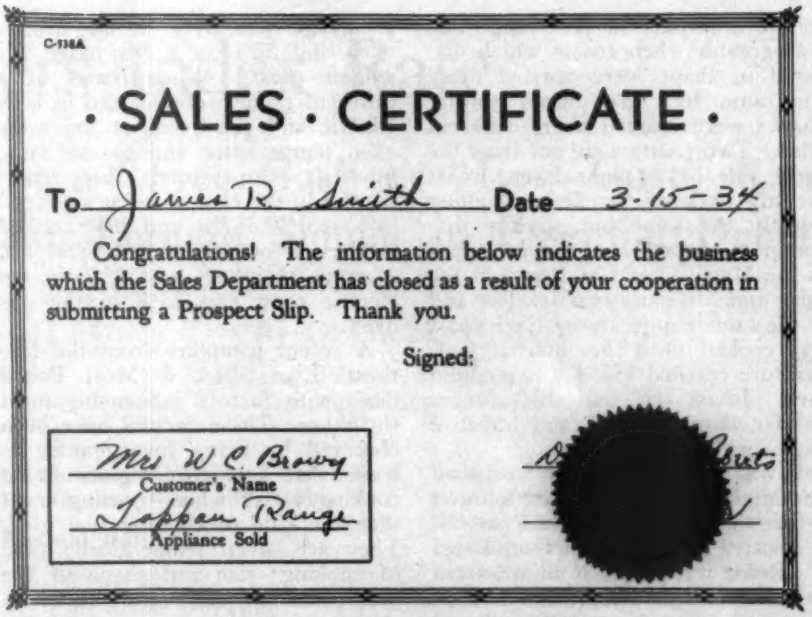
Date .....

Back of a prospect slip.

were stopped in all districts and increased emphasis was placed upon prizes and contests.

What were the results for 1934? A total of 30,336 names of prospects were turned in. These resulted in 9,957 sales, or approximately 33 per cent. The index of the average sale was $63.94. The plan had operated longest among distribution employees, and in this department 99 per cent of the employees earned one or more sales certificates during the year. Other departments had turned in slips resulting in 1,991 sales. Of all the employees, 90 per cent won certificates. The lowest department rated 70 per cent.

Let's summarize, to pick out some of the main features that contributed to the success of this plan. Continual cooperation of department heads is necessary or the employee soon loses interest. The action must carry from those at the top, down through the line of authority to "the last man" to make the program succeed. The operation of the plan was checked frequently through the line of authority to disclose any weak points. The activity should be made a part of meetings called for this and other purposes. In the Columbus Group, it has rested largely with department heads to determine when training is needed. Bulletins are used frequently to create new interest.


C-1168A

· SALES · CERTIFICATE ·

To James R. Smith Date 3-15-34

Congratulations! The information below indicates the business which the Sales Department has closed as a result of your cooperation in submitting a Prospect Slip. Thank you.

Signed:

Mrs W C Brown
Customer's Name

Tappan Range
Appliance Sold

Cooperation of the sales department must not be overlooked for certainly it is a vital factor. Employees should be invited into sales meetings at the beginning of campaigns. The salesmen, themselves, must be highly trained and able to close sales. If they do not average a good percentage of sales among the employees' prospects, the employee will lose interest.

By these means a spirit of enthusiasm has been built up among the Columbus Group employees. A spirit of loyalty—pride in accomplishment—has been established. The individual does his part, not for money, but for recognition of doing this job well, along with his regular work. Thus, the program has grown from supplying 32 per cent of the company's business in 1932 through 1934, when it supplied 56 per cent. Present indications show increased enthusiasm and results for 1935.

Gas—The Ideal Fuel

By DOROTHY E. SHANK

Director of Research Kitchen, American Stove Co.

Dorothy E. Shank's discussion on meat shrinkage, abstracted herewith from her paper "Gas The Ideal Cooking Fuel" presented at the meeting of the New England Gas Assn., Feb. 15, 1935 should be of valuable assistance in correcting false impressions on this important subject.

IN the much discussed subjects of meat shrinkage and food flavors it would be possible to argue all day and get nowhere because it is possible to prove most anything we set out to prove if we make the conditions right for our purpose. There is an old saying that, "Figures do not lie but liars do figure." However, there is no use fooling ones self—it is not smart no matter how long it is possible to fool others.

The claim has been made that there is practically no shrinkage in roasts cooked electrically. The fact is that shrinkage in roasts is not dependent on the type of fuel. Many factors are involved in this question.

When heat is applied to the meat there will be shrinkage because heat drives off moisture in the form of steam; it melts some of the fat, part of which volatilizes or—in simpler terms—passes off as vapor, while part of the fat merely melts and runs into the pan. In addition to these losses there is always some loss of meat juices. These losses cannot be avoided when meat is subjected to heat, *regardless of whether the heat is supplied by electricity, gas or, in fact, any other fuel.* This all presupposes that every factor in roasting meat from the cut, size, shape, amount and distribution of fat, amount of bone, temperature at which the meat is cooked and the degree to which the meat is cooked is the same when using each kind of fuel.

The result of work done in our Research Kitchen shows an average of 22.17% loss when similar paired roasts of meat were roasted in a gas oven, and 21.81% as an average of those done in the electric oven—or a difference of 36%. *The percentage difference of shrinkage when roasting paired roasts under identical conditions in the electric oven and the gas oven which were used for our tests was practically negligible.*

The difference in percentage loss was greater when roasts which differed in shape were roasted using the same fuel than when similar shapes were roasted using different fuels. Two roasts were cut from the same side of an animal, one roast directly back of the first, weighing exactly the same but slightly different in shape. They were roasted in the Magic Chef Gas Range at the same time, in pans exactly alike and at the same temperature. Each roast was cooked until the internal temperature reached 155°F., or medium rare. Roast II was 1½ inches shorter than Roast I and about 2 inches wider.

It was found that Roast I reached this internal temperature 30 minutes before the shorter, broader Roast II, and lost 3% less weight than Roast II. Roast i required 31 minutes per pound and Roast II required 37 minutes per pound for roasting. Roast II lost less fat and juice than Roast I but the volatile loss was greater. Therefore, the difference in total loss was evidently due to a difference in shape of the meat and not to a difference in fuel used, since both roasts were cooked by gas. There was no difference noticeable in the brownness of the outside, flavor, tenderness or juiciness of the meat.

Of course, results of work done by an industry or a manufacturing company within an industry may be considered as being biased opinions. Because this was likely to be true I have tried to collect information from outside sources on the subject of shrinkage of meat when roasted in gas and electric ovens.

Now I am quoting from a Masters Thesis, the work for which was done at Iowa State College: "Under the same conditions there was apparently no appreciable difference in the losses in roasting meat in gas and electric ovens since the average loss when roasted in the electric oven was 23.01% and in the gas oven 23.75%. *Neither was there any noticeable difference in the texture, appearance or flavor of the meat when roasted in the two ovens.*"

In the American Dietetic Association Reports for 1933-34 a table is published showing the result of using both gas and electric ovens for roasting certain cuts of meat. The oven temperatures were 300°F., and the meat was roasted to an internal temperature of 170°F. The average gross weight of the five roasts reported roasted in an electric oven was 10.89 lb. and the average for the same number of roasts done in a gas range was 10.9 lb. The cooking shrinkage was 31% in an electric oven and 32% in a gas range for *similar roasts.* When roasts of a different grade were roasted in both electric and gas ovens at the same oven temperature and to the same internal temperature, the roasts cooked in the electric oven averaged in weight 19.31 lbs. and those cooked in the gas oven averaged 18.94 lbs. Average shrinkage was 25% in the electric oven and 23% in the gas oven.

A recent pamphlet from the National Live Stock & Meat Board deals with factors influencing meat shrinkage. These factors have been observed by many investigators as those that are more significant in cooking losses when roasting meat than the kind of cooking fuel used. They are—oven temperature; time of cooking; size and shape of the roast; internal temperature to which the meat is cooked; amount and distribution of bone; fat content; distribution of fat and whether or not the pan is covered or uncovered.

A recent British publication special Report Series No. 187, reports, "It is frequently stated that the juices are retained in the meat if it is roasted in an electric oven. The finished product is not so dry. This is probably because there is less ventilation and, therefore, less evaporation, in an electric than in a gas oven. Conditions are approaching those obtained by roasting in a covered tin. It has been shown in this investigation that anything tending to reduce evaporation from a roasting joint may appear to make the joint more juicy, but tends to increase the salt loss. On grounds of palatability, therefore, the electric oven or the covered pan may be beneficial, but chemically the evidence is rather the other way."

If we check on the statement that roasting in an electric oven approaches conditions of roasting in a covered pan, it has been found by investigators on the subject of meat cookery that the total cooking losses are greater when the roast is prepared in a covered pan than when roasted in an uncovered pan and that there are greater losses from drippings than from evaporation. Those who have worked on the problem of roasting in covered versus uncovered pans would not agree with the statement that the palatability is greater when meat is roasted in a covered pan.

If an electric oven has less ventilation and, therefore, as indicated by the report above, less evaporation, such a condition is not the best for baking pies, cakes, bread, etc., as in these instances evaporation of moisture from the product should take place.

And yet the controversy continues regardless of the fact that shrinkage is not dependent on the kind of fuel used for roasting meats.

The Question of Cost

This question of cost, too, presents an opportunity for controversy on the part of both the gas and electric industry. So much depends on the way each piece of equipment is used, how advantageously, how wastefully, how much proper pans are considered for the electric stove; how much care is given to turning the heat down or the electric element off before the cooking operation is entirely finished, that making definite statements becomes at once impossible or ridiculous if attempted. However, from doing exactly comparable tests on oven and top stove, using the same gas ranges and the same electric range, for exactly the same number of cooking operations in exactly similar pans (always those most efficient for electric stoves) with the same weights of materials; the same initial temperature; same methods; identical oven temperature; etc., we consumed 1278.24 cu. ft. of natural gas and 149.16 kwh. of electricity.

After all, a woman pays for her fuel by kwh. and cu. ft. used—the amount registered on her meter—so let us see about comparisons of the cost of the fuel used from actual meter readings in kwh. and cu. ft. for these comparable operations using both fuels. The fuel used included a week's menus, a number of tests when baking bread, cookies, pies and roasting meats.

Average costs are not particularly helpful for a given locality, but in order to present here a definite figure let us assume an average cost of $.70 per 1,000 cu. ft. as the cost of natural gas, and $.035 as the average cost of 1 kwh. of electricity. Then the cost, exclusive of meter or service charges, would be $.89 for gas and $5.22 for electric current. In other words, a saving of $4.33, or 82%, would be made if gas were used instead of electricity insofar as the cooking operations reported above are concerned.

According to the book, "Household Equipment" by Peet and Sater, "1,000,000 btu. of natural gas at $.60 per M costs $.57. (average 540 btu.) 1,000,000 btu. of Mfg. gas at $1.00 per M costs $1.85; 1,000,000 btu. of Electricity at .035 per kwh. costs $8.80."

The Customers Index Rate

Not a "Free Gas" or "Low Cost" Rate Plan Though Similar in Essential Details

By GEORGE H. JOY

General Manager, Mahanoy City Gas Company, Mahanoy City, Pa.

RATE reductions, in the direction of more gas for the same money, rather than less money for the same gas, present interesting possibilities. It would appear that they should work to best advantage where there is production and distribution capacity considerably in excess of present needs, and where the spread between customary rates and the increment cost of putting out additional gas is considerable. Such rates can be made general in application with the limitation that the additional gas should be sold to present consumers and, to this extent, certain types of special rates may become less necessary.

A rate of this character recently has been made effective for a situation where gross revenue must be maintained, or increased, and where considerably more gas could be produced and delivered without material additions to investment. The aim is to place the excess capacity at the disposal of present consumers, offering to each an opportunity to buy additional gas, in proportion to his present use of the product, at a much lower rate than otherwise would be possible. For practical purposes the rate must define "present consumers," and provide for equitable allocation of the gas thus made available. The rate follows:

CUSTOMERS INDEX RATE

Optional Service Rate
Issued—January 28, 1935
Effective—March 1, 1935

Availability:

This rate is available to every applicant who has been a consumer of gas supplied by this company, continuously, for at least the twelve months period immediately prior to the date of application.

Customers' Index:

This shall be determined by taking the average of the six highest months' gas consumption, selected from the record of gas consumption of the applicant for the twelve months immediately prior, and expressed to the nearest one hundred cubic feet, provided that no Customer's Index shall be for less than 1000 cubic feet.

Normal Rate:

Minimum charge:

One dollar a month.

Rate:

The first 100 cubic feet allowed with the minimum charge.

The next 4900 cubic feet at 17½ cents a hundred cubic feet.

All over 5000 cubic feet at 15 cents a hundred cubic feet.

Customers Index Rate:

All gas at 10 cents a hundred cubic feet.

Application of Rates:

All of the gas consumed, in excess of the customers' index, shall be computed and billed at the Customers' Index Rate, provided that such excess amount, so computed and billed, may not exceed the Customer's Index. All gas consumed, up to the Customer's Index, and all gas consumed in excess of double the Customer's Index, shall be computed and billed at the Normal Rate.

Term of Contract:

The term of this rate contract shall be for one year, and thereafter from month to month, provided that the consumer may, at not more often than twelve month intervals, elect to readjust his Customer's Index in the manner as originally determined.

By the time a consumer has been using gas for at least a year, a complete cycle of the seasons, he has indicated, in a practical manner, how much gas he is likely to continue using at customary rates. Excluding those who use minimum amounts, and are being carried at a loss, he has repaid all, or some part, of the costs incidental to putting him on the line and is contributing to the welfare of the company in proportion to his monthly bill. He has earned a position not yet attained by the new consumer, and at the same time, has built up a record that can be used to measure his comparative value.

The term Customers' Index has been taken as a convenient name for an average obtained from the consumers' record of gas consumption, covering a period of months, and expressed in MCF. Assuming that a minimum of twelve months is a favorable time in which to find out how much gas a consumer is willing, or able, to pay for at customary rates, the Customers' Index may be determined by taking the average of the twelve months, the average of the ten highest months, the average of the five highest months, etc. No doubt it could be taken equally well on a percentage basis. In the rate under consideration the average of the six highest months is used because it was found that only about 4.4% of present sales to consumers taking the rate might be affected by the reduction while 11% might be so affected if the twelve months' average were to be used. In either case the reduction would tend to disappear in proportion to increased use of gas on the rate.

In arriving at these figures two hundred and five gas accounts were analyzed, including only those of active customers, of at least twelve months' standing, none of which used less than 12. M.C.F. in the twelve months. One of the group used no gas for four months, evidently he was away from home, three others used no gas for three months, probably for the same reason. At the other extreme were some who used just about the same quantity, month after month.

These accounts were examined to determine the effect of basing the customers' index on the average of twelve months, the ten highest months, the nine highest months, and so on down to the one highest month.

(Continued on page 62)

GAS FOR MODERN

Ronald A. Malony

What Gas Refrigeration Has Done for the Gas Industry

RONALD A. MALONY

Sales Manager, Bridgeport Gas Light Company

SALES of domestic mechanical refrigerators in 1935 have been estimated at 1,800,000 units. Last year 1,400,000 units were marketed by the industry. It is one of the country's big businesses. In the years since the large coal range replacement sales, the gas industry has watched the development of other big businesses from the outside. Radio, automobile and other specialty sales have done little for the gas industry but carve the customer's dollar.

The refrigeration market offered gas companies an opportunity to promote something that was already in the public eye. The popularity of mechanical refrigerators, the enthusiastic activity of the business and the wide-awake competition has indeed proven a tonic to the gas industry. Resourcefulness in sales plans and training of salesmen affecting not only refrigerators but other gas appliances as well, has been a by-product of joining in the national refrigeration swim. This has supplied, what we all term, the "glamour" to our refrigerator activities.

Behind this intangible benefit lies the very material gains that refrigeration has brought to our industry

(1934 Chairman of the A.G.A. Refrigeration Committee.)

Wherever gas companies have pushed gas refrigeration as part of their appliance selling policy they have achieved results in at least three different directions: first, increase in revenues as the direct result of the use of gas to operate the refrigerators sold by the company; second, increase of revenues from other appliances that have been sold in recent years incident to the kitchen planning movement which may not have been possible without gas refrigeration; third, increase of company prestige, with all that means in building up the gas load through the sale of appliances.

The first proposition stated above is hardly subject to dispute, while the second and third instances may be challenged as belonging to the sphere of what are ofter referred to as "intangibles." There are so many gas company executives in all parts of the country who have made a success in the sale of gas refrigerators and who now recognize its importance because of the direct as well as the indirect result in increasing business, that there appears to be no question of the immense benefit that gas refrigeration has been to the industry.

Increased Gas Load

Let us consider at the outset, the direct results in revenue to the companies which have made the selling of Electrolux refrigerators a major effort during the past few years. It

(*Continued on page 34*)

Display of Prosperity Cups at Ovington's, New York.

REFRIGERATION

Why Gas Companies Like A.G.A. Refrigeration Campaigns

J. J. QUINN
Chairman, Refrigeration Committee, A. G. A.

J. J. Quinn.

THE answer to the question "Why Do the Gas Companies Like A. G. A. Refrigeration Campaigns" is to be found in the fact that these campaigns have been planned to meet a definite need within the industry. They provide a means for aggressive promotion of a gas appliance that is rapidly gaining public favor. These campaigns offer to gas companies, dealers and salesmen a means of sales stimulation that arouses the enthusiasm of all parties concerned. These contests bring to the front a concentration of thought and action by gas companies and dealer organizations at a time when this united action is most needed. In 1935 particularly, this united industry action will undoubtedly result in a spectacular sales accomplishment.

With the handsome Silver Prosperity Cups as trophies and over $12,000 for winning contestants, the 1935 Good Old Fashioned Refrigeration Sales Contest cannot fail to receive hearty industry support. The experience recorded in last year's successful Blue Vase Campaign provided the 1935 Committee with a fine background for a constructive sales building program.

Executives and members of sales forces alike admire the way in which these contests are staged. They receive these campaigns with enthusiasm for they know their adoption will develop sportsmanlike qualities within their own organizations as well as between competing companies. There is something more than material gain at stake, although cash awards to salesmen and companies are greater this year than in any previous year. The Prosperity Cup was selected as a symbol of the hope for a return to so-called "good times" that is uppermost in the public mind at the present time. These graceful trophies were chosen by the Committee as a fitting incentive to all concerned to join their merchandising forces in this concentrated sales effort. Rightly, the campaign is attracting nation-wide interest and support; for the time is appropriate; the Electrolux Gas Refrigerator is a product worthy of aggressive promotion, and buying interest is unusually well developed.

Salesman's Presentation of New Models of Electrolux

Early enrollment by every gas company is urged. Regardless of size of company or local conditions, the Refrigeration Committee hope that each gas company will register as a contestant. Such united action will stimulate interest and have a fine effect on the industry as a whole. As a means of inducing a prompt and complete enrollment from all gas companies, the Committee will present an autographed copy of M. Zenn Kaufman's valuable book "How to Run Better Sales Contests" to each sales manager who sends in his company's registration promptly.

Careful thought and planning have produced a sales contest with many

unique yet most practical features. First of all, the contest is timely—from April 1 to June 30—at the height of the refrigerator selling season, the period of greatest demand and acceptance.

Next, provision has been made for liberal prizes for both (a) gas companies and (b) retail salesmen.

Third; seven divisions have been set up for the contest based on the number of domestic gas meters as follows:

Division A—Metropolitan Gas Companies as specified
B—Above 40,000 meters
C—20,001 to 40,000 meters
D—10,001 to 20,000 meters
E— 5,001 to 10,000 meters
F— 1,001 to 5,000 meters
G—Under 1,000 meters

Fourth: Awards for gas companies are recommended by the Refrigeration Committee to be divided among sales managers and domestic sales supervisors inasmuch as other individual awards are provided for salesmen. Needless to say, no dictation in this regard is intended but the Committee strongly feel that this suggestion is in the interest of fullest cooperation and fair team play. These awards are for greatest three-months' total installations.

This group of twenty-one awards consist of three in each of the seven divisions.

First:	Silver Prosperity Cup and $300.00
Second:	200.00
Third:	100.00

In addition, fourteen awards are available, two in each division, for greatest number of installations per 10,000 meters during the three months' campaign period.

First:	$200.00
Second:	100.00

It is entirely possible that awards in both of these groups may go to the same company. In such event, this combined money prize will indeed be most worth-while, and good luck to the company that can accomplish this result.

For Division A companies, there are three special awards for best apartment sales performance. Awards in Division A only are made on the basis of best performance against pre-established quotas.

For salesmen, there are 140 awards each month—20 awards of $10.00 each, in each of the seven divisions. Also, nine major awards ranging from $100.00 down to $20.00 for greatest individual sales for the three months' campaign period. Dealer salesmen will be eligible for these awards on an equal basis with gas company salesmen. Monthly awards can be won only once by an individual. Sales by salesmen made to company employees do not count toward salesmen's awards.

Finally, a special gold medal will be presented to all salespeople attaining "better than average" sales in this campaign.

All awards are based on completed installations, duly reported to the A. G. A. headquarters each month on blanks provided for that purpose.

The Committee recommend supplementary local campaigns with suitable prizes as a means of increasing interest and improving the chances of winning a Prosperity Cup. Gas Company and dealer organizations alike will quickly appreciate the opportunities for special recognition, and extra earnings that may be provided through these local contests.

Promotional Material

Believing that 1935 is a Gas Refrigeration Year, the Committee and the manufacturer have cooperated to the fullest in developing the decidedly practical promotional material. Many of these sales aids are decidedly unique and original to the home appliance selling field. Direct mail, newspaper and national magazine advertising of a high order will be extensively used as an effective aid in this campaign.

Fifty-two pages, mostly in color, in the eight most widely read national magazines will be used as basic background advertising. An elaborate newspaper campaign will supplement national advertising. Think of the effect that these messages will have on sales. Enthusiastic sales effort and intelligent local planning as a part of this great national effort, will result in an unprecedented volume of gas refrigerator sales.

There is a fine extensive Electrolux market waiting to be sold in every city and town supplied with gas service. The Committee expect that each gas company has set a substantial Electrolux sales quota for 1935 and that they aim to sell in excess of one-third of this quota during the Prosperity Cup Campaign.

Gas Refrigerator sales depend more on the energy and thought displayed by gas companies, dealers and salesmen than on individual buying power. With the convenient financing provided by various budget plans, including the provisions of the Federal Housing Act, it is seldom that sales are lost on the "can't afford" basis. They are unfortunately too often lost because of failure to see and tell prospective purchasers of the many exclusive and outstanding advantages available only in the Electrolux Gas Refrigerator.

In these days of politic and economic uncertainty, there is no better course to follow than to industriously apply ourselves in the accomplishing of a good selling job.

The Refrigeration Committee are confident that the gas companies of the country and their supporting organizations will do their full part in this nation-wide campaign.

What Refrigeration Has Done for the Gas Industry

(*Continued from page 32*)

has been roughly estimated that the use of this superior type of automatic refrigerator which comes under the head of gas appliances because it is operated with heat from a gas flame, has added more than ten billion cubic feet annually to the national gas load. The Consolidated Gas Company of New York which was the pioneer in pushing gas refrigeration has an annual gas load of more than 2,500,000,000 cu. ft., on its refrigeration account.

The Brooklyn Union Gas Company announced several months ago that the gas-operated refrigerators used by its customers consumed more than 700,000,000 cu. ft. annually. In Philadelphia where the Philadelphia Gas Works Company has pushed gas refrigeration aggressively, the annual load resulting from the use of Electrolux is now 220,000,000 Cu. Ft., approximately. Other companies can boast of comparably equally fine records.

Could the revenues represented by these loads, have been built at the same promotional costs through the sale of other appliances? Can such increases be acquired in these days, at any new business expenditure, without tampering with the rate schedules? The importance of this point alone can not be too strongly stressed. With the trend toward promotional rates for every service but cooking, support at the top step in the rate is badly needed by the gas range load beset with marginal rate electric competition.

Gas a Modern Fuel

While campaigns are being conducted to promote the sale of gas refrigeration, the minds of consumers are being impressed with the desirability of gas *as a modern fuel*. The salesman who is selling Electrolux is usually the same man who is selling other appliances. In the selling of all gas appliances, he must, in the

very nature of things, stress the economy of using gas for house heating, cooking, water heating, and particularly, he makes most of the argument that gas used for refrigeration is cheap.

The promotional plans furnished by the manufacturers of Electrolux refrigerators in their cooperation with the hundreds of gas companies who are pushing gas refrigeration is an invaluable asset in increasing the gas load through the sale of all appliances. The use of gas to supply refrigeration to the household is, incidentally, an ideal way of building up that most desirable thing,—the year round load.

Recently, the writer talked with F. E. Sellman, vice-president in charge of distribution of Servel, Inc., the manufacturers of Electrolux refrigerators, in which he reported how the industry is responding to the promotional efforts that are helping to create an increasing public acceptance of gas refrigeration.

Air of Romance

Mr. Sellman mentioned the "air of romance" that goes with the promotion of gas refrigeration. It is many years since any one either in or out of the gas industry has felt that the use of gas had anything "romantic" about it. But every gas appliance salesman who includes the selling of Electrolux as part of his job knows the amazing story of the two Swedish students whose experiments in the University of Stockholm led to discoveries that resulted in the present gas-operated refrigerator. The law that cold could be made by heat was known to French scientists as far back as the middle of the last century. The two Swedish boys hardly out of their 'teens made the application of this law possible.

The bringing of the Electrolux refrigerator to this country by the well known Swedish industrialist, Axel L. Wenner-Gren in 1926, is part of the romantic story of Electrolux.

It is also interesting to know that in May, 1932, the two young co-inventors of Electrolux were signally honored in the United States for their great contribution to the families of the world. At that time they received the John Price Wetherill Medal and Certificate from the Franklin Institute of Philadelphia, Pa., "for their pioneer work and ingenuity in the evolution of an absorption type of apparatus for refrigeration by the use of an inert gas to equalize the pressure required in the system."

Several large gas companies, particularly those in the eastern seaboard area, were quick to appreciate its great possibilities and soon put forth aggressive efforts toward placing it in the homes and fine apartments throughout the East. It was not until January, 1928, however, that the first real merchandising history began which was to establish this new idea in refrigeration in the forefront it now occupies.

To many in the gas industry the cost of originally promoting the sale of refrigerators seemed out of all proportion to the benefits derived. Servicing costs were high, inventory investment high and the public totally lacking in sympathy and acceptance. The foresight of those gas executives who continued to aggressively push the sale of gas refrigerators in spite of these difficulties has paid them handsome rewards. A background of financial investment in developing the refrigerator load is indeed a tangible asset to a gas company. This truth is clearly evident in the territory served by the Bridgeport Gas Light Company, who have not merchandised for more than twenty-five years. In spite of the splendid acceptance of Electrolux in adjacent communities the need for promotion in Bridgeport is clearly evident. Confidence in gas refrigeration by the public can only be built by the local gas company.

In the words of Mr. Sellman: "The gas refrigerator now gives the gas industry the weapon with which it can forge to the front and claim its rightful place among the ranks of the wonder-workers.

Aid to Appliance Sales

"Even if the sale of a gas refrigerator meant no new load or revenue, it would pay most companies to push its sale for the sake of its appeal as a gas device that is new, up-to-the-minute, and in the very vanguard of progress. We all know that the electric industry is making strenuous efforts to capture the cooking load. While the progress that has been made in competition with gas service has not been startling, still some progress has been made. No gas man wants to see any further progress made along that line. Just remember that the sales argument for electric cooking is built around the theory that electricity is the modern fuel and that gas is obsolete. What better answer could be made to this argument than an aggressive promotion of gas refrigeration on the market today. Every time another gas refrigerator is sold, a further boost is given to the proposition that gas is the best and most modern fuel.

"There's one thing that it will be well for us all to keep in mind—and that is that wherever gas refrigeration is installed, the electric range salesman can obtain no sympathetic hearing. The sale of a gas refrigerator insures the cooking load in that home for an indefinite period. It would, therefore, seem that regardless of any other reason, the gas industry should make a combined drive to push gas refrigeration, just for the insurance it gives that the cooking load will be retained with a minimum of effort.

Cost Question

"In still another way, the promotion of Electrolux gives the gas company a tremendous advantage—an advantage which is often overlooked. This advantage lies in the fact that the customer is apt to place a value on Electrolux service which will be several times its actual cost. When the electric utilities began to market electric washers, it was noticed that a customer using an electric washer seldom complained about high bills. The reason for this is simple. The customer knew from experience just how much hard work was involved in doing a family washing over a tub and washboard, and reasoned that any machine that would bring relief from such toil must of necessity use a great deal of electricity. While the amount of electricity used by the washer in the average family was actually very small, the customer assumed it to be large, and, consequently, felt well satisfied with any average bill.

"In the same way, a customer using a gas refrigerator places a very high value on this service. The service actually costs very little, but it has an actual money value to the customer many times its cost. Such a customer is apt to develop the feeling that gas service is efficient and economical—a service that may well be utilized for many purposes. When a customer feels this way about his cost of gas, then he is an excellent prospect for other service, such as house heating. Therefore, as an opening wedge for larger merchandise sales, the possibilities of the gas refrigerator must not be overlooked.

"During the recent lean years of the depression, many gas companies found that the sale of gas refrigerators removed the red ink from their merchandise operations. With increasing acceptance of gas refrigeration, the profit possibilities through its sale should become of increasing importance."

(Continued on page 62)

DON'T FAIL TO

REGISTER

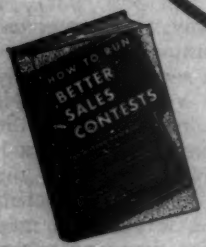
Win this

PROSPERITY CUP

521 AWARDS

OFFERED IN THE SECOND OLD-FASHIONED CONTEST

for Company and Individual Refrigerator Sales Achievement



FREE—*a copy of "How to Run Better Sales Contests," autographed by the author, to all sales managers who register early.*

THIS NEW BOOK—just off the press—written by a nationally famous authority, is a comprehensive source book of stimulating, novel, tested contest ideas to help sales managers help salesmen sell.

So don't delay in sending in your contest registration. Awards are generous. Every company and every salesman has a good chance to win an award regardless of local conditions and handicaps. If you haven't received registration blanks, write or wire at once to J. W. West, American Gas Association, 420 Lexington Avenue, New York City.

REFRIGERATION COMMITTEE . . . AMERICAN GAS ASSOCIATION

Getting Your Money's Worth—in a gas refrigerator window display

By **STUART BRATESMAN**

Manager, Display Department,
Boston Consolidated Gas Company.

IT is a common thing these days to hear of people driving "extra hard bargains" in purchases that demand an outlay of money over a period of months, like a gas refrigerator. Today, the average person thinks twice before investing in any type of appliance, be it gas or electric. Why not play up this careful buying theme in your next set of refrigeration window displays?

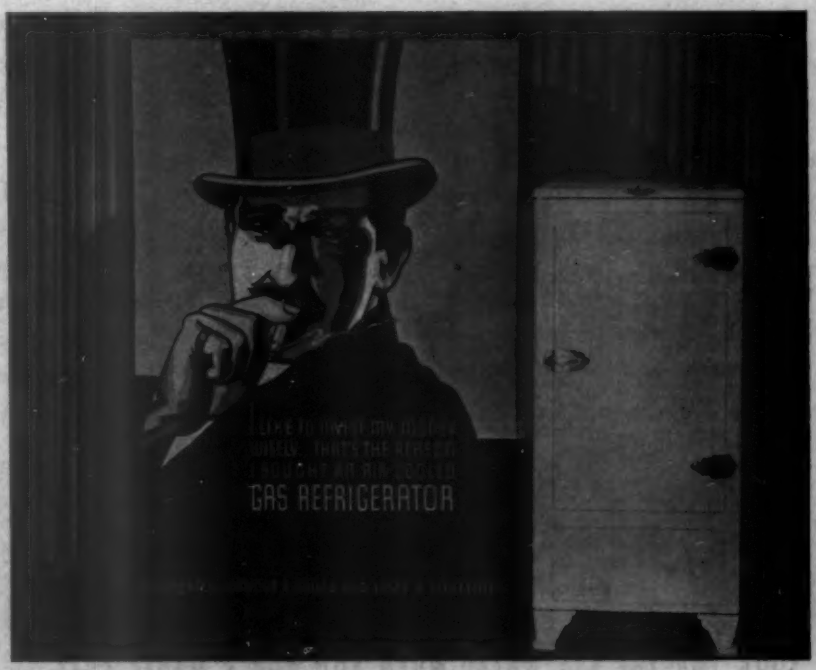
Leaving out the feminine angle in buying gas appliances for the minute, suppose we use the man's side, as subject matter. Irrespective of the fact that the lady of the house selects most household helps, it's the so-called "master" who lays the money "on the line" for the actual purchase. Naturally, he demands a few facts before making this expenditure. One way to tell him is with intelligently planned window advertising.

Take the two ideas shown with these lines—Each one uses this man's buying angle to good advantage. One thing I would like to draw to the reader's attention is the fact that the copy is not long, drawn-out descriptive phrases about features. All these two displays attempt to do it is to arouse a little male interest about the silence, economy and long life of the air-cooled gas refrigerator. After this is done, we let the salesman explain the detailed features. Remember this, contrary to some opinions, a window display, like an outdoor billboard, should *attract attention,* nothing more. Sell one idea, with one piece of display material, and you've done a good job.

Both of these displays were painted in tempera water color paints on areas of beaverboard, framed from behind with light pine stock. They are not flat pieces, as one might expect by looking at the photographs, but varied in depth from four to twenty inches. The average cost of a display of this type is around fifty dollars.

A word about the set illustrated by the man in evening clothes;—this poster display was painted entirely in black, white and grays, except the area directly behind his head, which was a brilliant yellow-orange. Besides lending a tone of dignity to the set, it lasted about twice as long as the average display, due to the fact that the colors were fast (that is, non-fading).

(Continued on page 45)



MAGIC CHEF HEAVY DUTY

Equipment for Modern Gas Cooking

WITH its advanced design and new standards of greater efficiency, convenience and economy, Magic Chef Heavy Duty Automatic Equipment completely fulfills the requirements of modern gas cooking.

Purveyors of food to the public, including hotels, restaurants, cafeterias, lunch rooms, taverns, clubs, hospitals and institutions public and private, will be impressed by its many advanced features.

These features include perfect control of the gas flow provided by the famous Red Wheel Lorain Oven Regulator; extra heavy oven insulation for cooler, more comfortable kitchens; burners with wide range of heats; substantial saving of gas; modern streamline design with easy cleaning and sanitation; continuous cooking tops; more wholesome and delicious food because of more even and controlled heat; automatic lighting; speed, safety, dependability and durability.

Magic Chef Automatic Heavy Duty Equipment materially strengthens the important position of gas for cooking and gives added co-operation and support to the gas industry in its efforts to build and maintain the gas cooking load. An illustrated descriptive folder gives the complete details. If you haven't seen it, write for a copy.

AMERICAN STOVE COMPANY

World's Largest Manufacturer of Gas Ranges

BOSTON • NEW YORK • ATLANTA • CLEVELAND • CHICAGO
ST. LOUIS • PHILADELPHIA • SAN FRANCISCO • LOS ANGELES

Magic Chef
AMERICAN STOVE COMPANY

LOOK FOR THE RED WHEEL WHEN YOU BUY A MAGIC CHEF

"SUCCESSFUL SELLING"

Unique Milk Test Used to Sell Gas Refrigerators

THAT, because it provides absolutely constant temperature, a gas refrigerator will keep milk fresh longer than any other form of refrigeration was recently proved to the people of Sterling, Colo. in a novel test conducted by the Gas Company of Sterling in cooperation with representatives of the city food and dairy inspection office.

A sample of raw milk was kept in the gas refrigerator for 412 hours and although beginning to turn sour, was still fit for human consumption at the time of removal. The multiplication of bacteria was surprisingly small. The original bacteria count was 1,800, the final one only 16,000.

The test was first announced in a newspaper advertisement headed, "Under Perfect Cooling Conditions, How Long Will it Take Milk to Spoil?". The balance of the ad answered the question by describing the method of the test. The sidewalk in front of the window where the test was made was crowded with people at the time the refrigerator was first sealed up and every succeeding test drew an equal or even larger crowd.

Inexpensive Publicity

"The first promotion proved so successful—despite the fact that it was conducted at the wrong season to produce many immediate sales—that we plan to repeat it this spring," says manager Glenn Cooper. "The first time we made one immediate sale and got a lot of good prospects. Next time we expect to get a real volume of immediate business."

One of the outstanding features of the test plan was its low cost. The total expense for newspaper advertising and window showcards was only $25—$12.50 for the gas company and the balance for the dairy which cooperated in the experiment. The dairy's name was conspicuously used in the advertising, in newspaper publicity and in the window showcards.

The local newspaper cooperated with two excellent publicity stories, one at the time the test was launched and a second when it was completed.

Method of Handling Test

The test was started with 15 bottles of milk. One was used for the first test, the remaining 14 being placed in the refrigerator. The box was sealed by the health authorities, all in plain view of spectators.

For the first two weeks, the box was opened twice a week and one bottle taken out and tested each time. After that, the tests were made twice a day until the milk showed the first signs of souring.

The entire test was conducted in the store window. The box was placed here, along with showcards explaining the whole idea and giving daily reports on the progress. The city people made their tests of the milk right in the window—a big factor in drawing crowds. The instruments used fascinated people.

To impress the idea that constant temperature was the big factor in good refrigeration, the company left the lower part of the box open, revealing the gas flame. More comments were made and more questions were probably asked about the flame than any other feature of the display.

Care was taken to pick the sunniest of the company windows and to leave the awning up all the time. While this actually had no effect on the test, it made a valuable impression on the average onlooker.

"When we repeat the test, I think we can make an even more striking impression by running a recording thermometer up into view and displaying temperature charts," says Cooper. "This will give absolute proof that a constant temperature is maintained."

THE CITY OF STERLING
DAIRY INSPECTION DEPT.
SCORE CARD FOR MILK

Place: Gas Company of Sterling. Exhibit No. 1
Sterling, Colo. Nov. 9, 1934.

	Perfect Score	Score Allowed	Remarks
Bacteria	35	34.7	Bacteria standard plate count 1800
Flavor and Odor	15	15	Curdy, bitter, foul, flat, strong, cooked
Sediment	10	10	clean
Fat	15	15	Per cent 4.90
Solids not fat	15	15	Per cent 8.85
Temperature (lowest samples) or Acidity (prepared samples)	15	5	Degrees 35° F or Per cent ice box 41° F.
Bottle and Cap	5	4	Bottle 3 Cap 1
TOTAL	100	98.7	

(Signed) A. T. Blackman
Tester
Ross Moorman.
Inspector

Remarks: 15-1 qt bottles of Glenallen milk delivered to me at 8:30 A.M. November 9, 14 bottles sealed in Gas Company Refrigerator for testing. 1 qt. used for this test.

First Test

THE CITY OF STERLING
DAIRY INSPECTION DEPT.
SCORE CARD FOR MILK

Place: Gas Company of Sterling. Exhibit No. 6
Sterling, Colo. November 26, 1934.

	Perfect Score	Score Allowed	Remarks
Bacteria	35	31.9	Bacteria standard plate count 16000
Flavor and Odor	15	0	Curdy, bitter, foul, flat, strong, cooked sour.
Sediment	10	10	clean.
Fat	15	15	Per cent 4.50
Solids not fat	15	15	Per cent 9.00
Temperature (lowest samples) or Acidity (prepared samples)	15	5	Degrees 39° F. or Per cent Ice box 39° F.
Bottle and Cap	5	4	Bottle 3 Cap 1
TOTAL	100	80.9	

(Signed) A. T. Blackman
Tester
Ross Moorman.
Inspector

Remarks: Sample taken at 12:30 milk turning sour. Milk remained in Gas Refrigerator 41½ hours.

Final Test

Under Perfect Cooling Conditions, how long will it take milk to spoil?
We're Going to Put Some
GLENELLEN MILK
in an Air-Cooled
ELECTROLUX
Gas Refrigerator and Find Out!
Friday we'll put a number of bottles of that delicious, fresh, low bacteria count Glenellen Milk in the most modern of all refrigerators, the air-cooled Electrolux. An official from the city food and dairy inspection office will test one of the bottles of milk to make sure it is absolutely fresh. Then the milk will be allowed to remain in the Electrolux for days, weeks, or months—until it has spoiled and is no longer fit for human consumption. Regular tests will be made of the milk and announcement will be made when it is officially declared spoiled.
The modern delivery syystem of the Glenellen dairy will bring the milk for the test to the office of the Gas Company of Sterling, fresh and perfectly cooled . . . just as it would bring it to your home. Ask about Glenellen Milk and Electrolux today!
Gas Company
of Sterling
Glenellen
Farm Dairy

Newspaper Advertisement

Contacted Doctors, Nurses and Schools

"Probably the most important thing about the whole 'stunt' is to impress its authenticity. We accomplished this by getting the cooperation of the city health people. The average person knew that they couldn't be 'bought.'

"We got their interest by presenting the idea from a scientific standpoint. We pointed out that they didn't know just how long milk would stay fresh under this kind of refrigeration and neither did we and that it would be to the public good to find out. The fact that the test was made on raw rather than pasteurized milk had an important bearing on general interest.

"Doctors, nurses and school authorities were equally interested. We contacted medical and nurses' associations to call the test to attention and asked them to visit. A lot of them did—and the impression we made on them is invaluable for they have a great deal of influence on the average person in health matters. One doctor was so impressed that he suggested we repeat the demonstration at the local school for the benefit of the students.

Effect on Competition

"Another interesting thing we observed about the test was its effect on electrical competition. Because the electrical dealers don't actually know what their boxes will do in a similar test, they have studiously avoided this appeal. We would do the same thing in a similar case. As a matter of fact, we made a previous test and were pretty sure what performance our unit would give. The point is that if the gas refrigerator dealer makes the first test, he gets a valuable 'jump' on competition.

"It's mighty important to be sure what you can do on a proposition of this kind before publicizing the thing, for a fiasco would ruin business for a long time. We not only checked our refrigerator beforehand but also the milk. We saw to it that we had absolutely reliable milk.

"We were pleasantly surprised at the general interest in gas the refrigerator test created. It seemed to make the whole community more 'gas-minded' than ever before, on heating equipment and other lines as well as refrigerators. The fact is that despite nation-wide promotion work, a lot of people haven't ever given gas much serious thought. It takes something unusual like this to stimulate their interest."

Over 500 Show Definite Interest

It is estimated that around 500 people showed definite interest in the test, either by coming into the store to ask questions or by watching the window repeatedly. A list of 62 names of people who actually came in is on file ready for follow up this spring.

These people will be contacted first through direct mail—a series of two or three letters, probably—and if this doesn't bring them in, followed up by personal call. Mr. Cooper feels the letters serve a valuable purpose in paving the way for effective personal calls, even though they don't bring direct results.

The Man With the Wrench

(Continued from page 16)

the entire group and from their ranks several are elevated yearly. Thus, the utility does not go outside for salesmen; and experience demonstrates that an old gas man, properly trained, is a better salesman than an appliance man having only dealer training.

Opportunity

Opportunity is the main-stem of the inspirational activities. Every man is firmly sold the idea that opportunity is to be found today, as it was found at any other time in the world's history. Backing this, then, is the actual proof in the number of metermen who yearly go up from the ranks. Thus, the inspirational program is as practical and adaptable as the educational side of load-building activities while the two are pushing forward to both increased load and a firmer relationship with the user.

Rental Plan Triples Water Heater Installations

A NOVEL rental plan last season almost tripled placement of hot water heaters for the Greeley Gas and Fuel Co., Greeley, Colo. The rental idea proved so effective on water heaters that this winter it was extended to cover both conversion burners and space heaters—again with excellent results.

Greeley being a small town, the utility had been selling only about 25 water heaters per season. Through the rental plan, the placement number was raised to 70. Of this number, about 10 rentals were turned into sales and six others sold indirectly. A good many more sales will undoubtedly be made this spring at the end of the year rental period, which will be explained. Only about 10 units have been returned to date. Another 15 have been on temporary vacation during part of the winter when people didn't need them but practically all of these owners have agreed to continue usage in the spring.

"The 'vacation' plan," explains C. H. Horne, manager of the property, "is much preferable to removal of the equipment. This way we leave the heaters in the home, blinding off the intake so people can't use them without our knowledge. We haven't any use for the equipment during the winter anyway so it might as well be in the homes ready for spring use. To remove a unit during the winter would require an extra removal and reinstallation cost. And, once the units were taken out, we might lose several installations out of the lot—particularly where people got 'hard up' and felt they couldn't afford the service. Where the equipment is left in, they are constantly reminded of its convenience and are almost sure to continue usage in the spring."

The rental charge for water heaters is $1.25 per month. Installation is free. If he desires, the lessee may apply all rentals for the first 12 month rental period—or any lesser period if he decides to buy beforehand—to the purchase of the equipment. The value of the unit is plainly stated in the contract used so that there can be no dispute on the balance. It is also provided in the contract that if the customer decides to buy, his monthly payments cannot be less than three dollars per month on this balance. Or, if he desires to pay off the remainder in cash, he will be allowed a 10% discount.

A drive to convert the rest of the rental installations into sales will be launched this spring about a month or so before the expiration of the one year rental periods. The first approach will be through personal letters to all users. Those that aren't brought in on this appeal will

be called on personally. Mr. Horne feels that the letters will be worthwhile in paving the way for favorable personal contacts, even though they don't bring many direct sales.

Burners and Space Heaters $1.50

About 25 conversion burners and space heaters have been placed through the rental plan. This figure is broken down into eight conversion units and 17 space heaters.

Practically the same rental arrangement is followed here except for the fact that the monthly charge is $1.50 instead of $1.25. The regular installation charge is made on conversion burners but if the equipment is used an entire season, this amount is refunded. If the customer decides to buy, the installation charge and the total rentals paid can both be applied on the purchase balance.

Complete Contract Highly Important

One of the most important things in successfully handling a rental system is the use of a comprehensive contract covering every possible contingency, according to Mr. Horne. The agreement worked out contains several unusual provisions.

To eliminate any chance of theft or loss, full identification information is stated in the agreement. This includes: trade name of heater, manufacturer's number, capacity, value and address where equipment is to be used.

Since the rental rate is a low one designed to build load rather than yield profit on the appliance itself, it is stated that: "Lessee agrees to pay the sum of $1.25 per month rental, in advance, prior to the tenth of each month and shall purchase and use gas in the operation of the following described heater."

It is plainly specified in the section covering the option to buy, that not more than 12 monthly rentals will be applied to the purchase of the heater at any time. This one year period gives the customer ample opportunity to decide whether he wants to buy the equipment and yet is not so long as to have any great affect on its future value if the renter doesn't buy.

The balance of the contract is divided into eight sections.

In number 1, the lessee promises to take care of the equipment.

Number 2 states that expense of removal shall be the utility's.

The third section provides that the lessor shall maintain the equipment unless it is misused, in which case the lessee shall bear this expense.

Section 4 gives the company the right to remove heaters if rentals aren't paid.

In section five, the lessee agrees not to tamper with the equipment or remove it from premises specified except by written permission from the company.

Number 6 is a mutual agreement that the company shall retain title to the equipment and that it shall not be considered affixed to the property.

Section seven frees the company from all liability for damages caused by operation of the heater.

The final point is that the contract is strictly a rental agreement and that the whole contract is expressed in this instrument.

Low Promotion Cost

Low cost of the rental campaign was one of its most outstanding features. Nothing but attractive window signs were used on the space

(Continued on page 62)

AMERICAN-BOSCH
Automatic Gas Water Heaters

LOAD...UP

Seeking means of increasing your load? Gas companies everywhere have found a dependable ally in American-Bosch Automatic Gas Water Heaters.

This equipment represents the merged resources of two famous organizations...the old Kompak Company of New Brunswick, N. J. with its wide experience in gas appliance development...plus the engineering and manufacturing facilities which have for years distinguished the name American-Bosch in the magneto and radio fields.

The complete line of American-Bosch Automatic Gas Water Heaters includes a dependable, economical, automatic hot water system for every need—domestic and industrial. Especially timely is the new American-Bosch "Converter Model" for small homes.

American-Bosch engineers are at your service. Call on them for expert advice on your water heating problems—entirely without obligation. Write for full information.

The makers of American-Bosch products have for years taken pride in creating, designing, building, and selling products superior to those commonly in use. Proven leaders in their fields, these products are built up to a high standard of quality and not down to a price.

GAS APPLIANCE DIVISION

UNITED AMERICAN BOSCH CORPORATION

SPRINGFIELD, MASSACHUSETTS

NEW YORK CHICAGO BOSTON PITTSBURGH

"Heat With Gas" Says Public Service In Successful Campaign

"YOU be the judge" offers F. M. Chelf, Denver manager Household Gas Dept., Public Service Co. of Colorado. Opening an aggressive gas heat campaign last September 27, wherein he made a public offer of a free trial installation of a popular priced Conversion Burner, Mr. Chelf states that the campaign to date has resulted in approximately 100 installations of the "trial offer" burner plus many more of the more expensive units. The volume of gas consumption has jumped correspondingly—about 20%—as there are today, in the Denver district, some 750 installations of all types.

The opening of the campaign was marked by a full page ad in the leading daily paper which, in turn, was followed up with periodic insertions of a series of ads directed at the home owner who used coal for heating. This intensive advertising campaign was productive of many "leads" to the field force of 24 men who were regularly employed on the household program, calling in the course of their work, on every subscriber as well as those whose names appeared on the prospect list compiled from answers to the advertising.

The burner used in this trial offer whereby any qualified individual could have it installed in his furnace for the nominal sum of $2.50 and keep it there for as long as he wished by paying the same amount monthly plus the cost of gas consumed, is a simple, automatically controlled conversion unit. The installation as made by the Public Service Co. of Colorado included the latest type of thermostat heat control mounted in any central room that the owner desired.

The matter of keeping or rejecting the burner after a trial period in the home was entirely with the customer. If he elected to keep it the total amount represented by his monthly payments of $2.50 was credited toward the full purchase price of the burner and the regular monthly payments continued or, if he preferred of course, cash for the balance. If he decided not to keep it, he could order it out with no extra cost or continued responsibility or obligation. This feature, undoubtedly, states Mr. Chelf, was the greatest appeal to the prospective purchaser. He knew, when ordering the conversion of his heating equipment from coal to gas, that he could just as easily, order it out again, if for any reason the change wasn't satisfactory and not be obligated for any additional expense.

The campaign, according to Mr. Chelf, has served to interest many people in other and more expensive gas heating equipment. Some have bought completely new furnaces, many have bought larger conversion burners than the one used in the campaign. In some form or other, states Public Service advertising, one home in six of the many thousands of Denver residences, is heated with natural gas.

The trial offer, as outlined by the Public Service representative who called on the prospect, could run for as long as six months (practically the entire winter). During this trial period, the home owner could, at any time, sign a purchase contract worked out on an equal payment plan with full credit for each $2.50 he had previously paid.

Commenting on the success of this campaign, Mr. Chelf stated that it would run through the winter season in Denver and, doubtless, be revived again next fall.

Combination Range and Automatic Storage Water Heater Sale

NORBERT O. FRATT

Domestic Sales Manager, Seattle Gas Co., Seattle, Wash.

IN a combination range and automatic storage water heater campaign conducted by our company November and December, 1934, we offered as leaders the Wedgewood and Magic Chef Ranges and also Rex Automatic Storage Water Heaters. We wanted to impress the public with the beauty and modernity of the new gas ranges as well as the speed and convenience which has been emphasized continuously.

Our purpose in using the Automatic Storage Water Heater was to give the customer a combined service and at the same time give him the most advantageous rate possible. In Seattle when a customer uses an automatic water heater, he is eligible for a lower rate for all domestic service.

The government recently made a range survey of Seattle and we based our campaign on the figures obtained. We put the number of gas range users (42,930 out of 135,609 total dwelling units) on our painted billboards to show our acceptance, and studied our possibilities from the number of competitive fuels used (electricity—37,889, other or none—54,651, not reported—160). In Seattle, due to the abundant supply of free and cheap wood, many families still are clinging to their coal and wood ranges.

We covered all our mains with the two broadsides. The first month we circularized one half the territory with one range broadside and the other half with another range broadside. The second month we reversed the distribution so that each person received two broadsides with the water heater story and a different range during the two months.

We also mailed out the broadsides direct to a select customer list turned in by the salesmen who followed them up systematically.

In this campaign we lowered our down payment and also allowed 24 months terms to people who bought both the range and automatic water heater. Besides this we gave a special $20.00 discount if the customer bought both appliances at the same time. This was made possible in part by installing them at one time and saving on installation costs. We also gave a $10.00 allowance to a customer who had one modern appliance and added the other to complete the combined service.

This campaign was tied in with the Home Renovization Plan in Seattle and we had a modern gas range placed in the model home where hundreds of people viewed it every day.

Our window display tied in with the home renovizing idea and we showed an old kitchen and the new—together with plans for modernizing kitchens and pictures showing changes possible. This attracted many people. We also emphasized

(Continued on page 62)

What S.G.E. is doing to HOLD *and* BOOST *the* GAS *load*

This broadside is just one instance of the continuous cooperation which the Standard Gas Equipment Corporation gives to gas companies in helping them build and hold the gas load throughout the country.

SGE is spending thousands of dollars a year on this kind of cooperative advertising. We're steadily paving the way for your own salesmen by selling the economy, convenience and efficiency of gas to both domestic and commercial customers.

For instance, the broadside shown here was sent to a list of:

- **3,868 hotels having 100 rooms or over**
- **1,247 headquarters and units of hotel chains**
- **12,000 selected progressive restaurants**
- **1,333 headquarters and units of restaurant chains**
- **6,000 hospitals**
- **1,600 school board officials**
- **2,500 gas utilities and equipment dealers**

Copy, halftones, testimonials . . . brought these prospective customers PROOF that gas, in a modern, efficient range, was by all means the most economical as well as the most efficient fuel for cooking.

The above, combined with an advertising schedule in all the leading Hotel, Restaurant, Hospital, School and College trade magazines, is constantly building prospects for *you*.

Cooperation like this from a manufacturer is as rare as it is valuable. And we ask your cooperation in following up this advertising so that we may continue to make better equipment that will, in turn, make GAS a better fuel.

It seems both logical and economical for us to work together toward the achievement of this single ambition.

STANDARD GAS EQUIPMENT CORPORATION

18 East 41st Street **New York, N. Y.**

Offices: BALTIMORE, PHILADELPHIA, BOSTON, CHICAGO, AURORA, LOS ANGELES and PORTLAND, ORE.

Laclede and St. Louis Dealers Co-Operate

THE Laclede Gas Light Company of St. Louis is doing a dealer co-operative business which merits the attention of gas men everywhere who really wish to keep the cooking load and further promote the sale of gas ranges.

The Laclede company has spelled the word "Co-operation" in Caps. That is to say they have not entered upon a city-wide exploitation of the many advantages of gas cookery by running a few advertisements on gas ranges with an "after-thought" line which reads "Also sold by all good dealers."

Before launching their campaign the Merchandising and Advertising departments went into a huddle for the purpose of devising plans that would secure dealer interest on a really co-operative basis. The result of this huddle was that the Laclede company would advertise both in newspapers and through the use of window displays, certain types and models of gas ranges; namely ranges of modern console type having insulated and heat regulated ovens; and that they would do this consistently; that they would work with dealers selling this type gas range, throw what business they could to him and give him such other helps as education for the salesmen etc., via the conference method. In time, the dealer was told that it would be a smart thing if he would do a bit of advertising as a tie-in to the Laclede's newspaper advertising; telling folks when they might see and have the ranges advertised demonstrated. The result of this suggestion, according to the Advertising Manager Mr. R. D. Lewis, has been most surprising and has resulted in as many as sixteen dealers carrying ads in the same issues of the St. Louis daily newspapers at the same time the company advertisements appeared.

The best part of the program, however, is the results which both dealers and the gas company have had in the increased number of gas range sales despite the fact that dealers selling ranges using other types of fuel have been conducting the most costly promotion campaigns ever carried on in the St. Louis area.

The reproduction shown here gives an idea of just how the advertising dealer-Laclede Set-Up looks in print. It's good stuff; a real "How Story" which all gas men should profit by. Each should get busy at once and work out some such plan for their own town.

SPECIAL
Quick Meal
GAS RANGE
$39.95
St. Louis
HOUSE FURNISHING CO.
SPECIAL XMAS OFFER
QUICK MEAL
GAS RANGE
At $102.50
Kremer's
2900 Salisbury St.
QUICK MEAL
MAGIC CHEF
GAS RANGE
$39.95
STEIN
"EXPERTS SELECTED THE MODERN GAS RANGE FOR "THE HOUSE OF TOMORROW" AT THE WORLD'S FAIR. THAT'S GOOD ENOUGH RECOMMENDATION FOR ME. I KNOW A MERCHANT WHO HAS SOLD GAS RANGES SINCE I WAS A BOY—I'LL SEE HIM TOMORROW."
"SURELY I'M NOT WRONG IN MY DESIRE FOR A NEW MODERN GAS RANGE. THOUSANDS HAVE BEEN PURCHASED RECENTLY BY THE BEST HOME-MAKERS IN ST. LOUIS."
The GIFT for the HOME
FOR A LIMITED TIME ONLY
Extra Large TRADE-IN ALLOWANCE
Quick Meal
"Magic Chef"
GAS RANGE
$39.95
AND UP
SOUTH END HARDWARE CO.
Combine Sentiment and Usefulness With This Modern Christmas Gift
The Laclede Gas Light Company
Olive at Eleventh
CEntral 3800

Getting Your Money's Worth

(*Continued from page 37*)

The giant head in the other display was painted in five shades of turquoise blue against black, with white and black lettering on the two orange boxes.

If you've run out of merchandising angles for your window displays for the moment, try this male angle on buying a gas refrigerator. It will be of interest to the people who pass your office and help place more gas refrigerators on your line.

Service Application A Record of Constructive Importance

(*Continued from page 26*)

information. In this manner credit is authorized or credit arrangements made, while in contact with the customer, based on complete information. The total elapsed time does not exceed thirty seconds. The customer cannot see the signals or hear the information received. The spelling of the name is verified by the file clerk. Business or occupation and business address should also be verified.

Note: Tube station in left pedestal of each desk for receiving or transmitting any material required.

Method of Filing

In order to positively eliminate duplications and errors, in filing caused by variations in spelling, due to transposition of vowels, illegible writing, and many other reasons, the Customer History Record is filed by Soundex, a system which phonetically groups similar sounding names regardless of variations in spelling. In any activity where a sizable file of names is built up and a number of people are involved in the procedure, no matter how much care is exercised or how good the supervision may be, there will always be a number of variations in spelling the name as recorded on the various records. The Soundex method of filing is the only one which guards against this and avoids a duplication and perpetuation of errors. A variation in the spelling of names on the contract cards, the index cards, the addressing plates, the meter books and other records, has been found in every public utility organization during the installation of this system and subsequently eliminated as a result of using the system.

The rather common name of "Burke," "Byrck," "Buhrke," "Birck," "Burk," "Bourque," "Birk," "Bourke" is spelled in 40 different ways and the name "Baer" may be varied in approximately the same number of spellings. This will illustrate the great variation of spelling of even rather common names, and emphasizes the fact that foreign names are subject to almost endless variations. Soundex groups these variations and, after they have been grouped in one place, they are arranged by first name or initial. This reduces the filing and searching to only one place, regardless of how the spelling may have been varied. In many instances, it will even control foreign names' being changed to a simpler form, such as for example "Abramowitz" changed to "Abrams." These would be automatically filed in the same place.

Fig. 5.

Another outstanding advantage of Soundex combined with visible filing is the fact that should a card carelessly be filed in the wrong place, it is immediately exposed due to the Soundex code being shown in the visible margin and would instantly be detected as being different from the code numbers on cards with which it may have been filed.

Soundex not only eliminates errors, and speeds up filing and finding but also makes it possible to use a less expert and highly trained clerical personnel because of the simplicity of this method.

The following list provides some typical illustrations of many variations brought together by Soundex on one actual installation. This represents only partial lists of actual variations found.

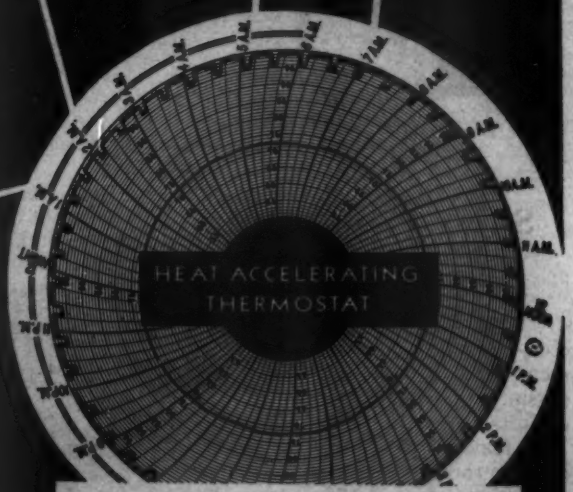
The file as shown on Fig. 5 is divided into alphabetic units with one clerk completely responsible for all references, credit authorizations, posting and balancing on each unit. A private line is provided from each desk to each unit of the file which eliminates any delay that might be caused by busy lines. The clerk has both hands free to operate the file because of the loud speaker and transmitter. The hand receiver is not used on these instruments. This reduces the interruption of posting operations to a minimum.

(Continued in May Issue)

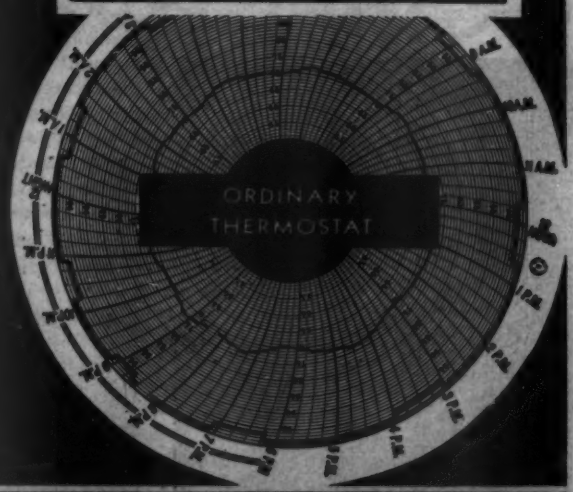
Some Typical Illustrations of Name Variations Brought Together by Soundex On One Actual Installation *(Showing only partial lists of actual variations found)*

Baker Code 260	Baer Code 600	Burke Code 620	Smith Code 530
Bakar	Baar	Illustrating Arrange-	Smyth
Bakkor	Baare	ment by First Name	Smithe
Baiker	Baear	or Initials	Smythe
Baecker	Baere	Albert C. Burke	Smidt
Baicar	Baiar	Arthur L. Berk	Schmidt
Bakear	Baier	Arthur W. Bork	Smid
Bacchr	Bair	Charles C. Birk	Smit
Bekar	Baire	Charles H. Bureck	Schmit
Bekir	Bayre	Charles O. Burque	Smitt
Bacer	Bairr	Charles P. Birck	Schmitt
Beker	Bare	D. C. Byrk	Schmidtt
Backer	Baehr	D. R. Berke	Schmiedt
Bachar	Baehre	David J. Buhrke	
Bacher	Bahar	Edward H. Byrck	Snyder
Bachor	Baehoar	Frank S. Bercke	Code 536
Bachur	Bahor	Frank W. Borck	
	Bayor	George A. Bourke	Snider
Bailey	Bayer	George R. Birke	Sneder
Code 400	Bayeur	George T. Burck	Snydar
	Bear	Harry L. Bourque	Snieder
Baily	Beer	Henry D. Buerck	Sneider
Bailie	Beere	J. D. Berck	Sniter
Baylie	Beier	J. L. Birke	Snydor
Bayley	Beare	J. W. Byrke	Shnyter

T-17



Actual charts taken in the same house under identical conditions, with outside temperature practically the same. The Heat Accelerating Thermostat maintained temperature within a fraction of a degree. Outside lines show burner operation.



TESTS TELL *the* STORY

THE Minneapolis-Honeywell T-17 Heat Acceleration thermostat is the accepted plain pattern thermostat in the gas heating industry. The many thousands in use the past season (by far the great majority of gas heating installations were so equipped) definitely proves this fact . . . Research laboratory tests and actual field tests tell the story of this new Heat Acceleration Thermostat. If you are not already familiar with all the details, a request to Minneapolis-Honeywell Regulator Co., 408 East 28th Street, Minneapolis, Minn. will bring you complete information.

Quality Controls Cost Less Than Service

MINNEAPOLIS HONEYWELL

Control Systems

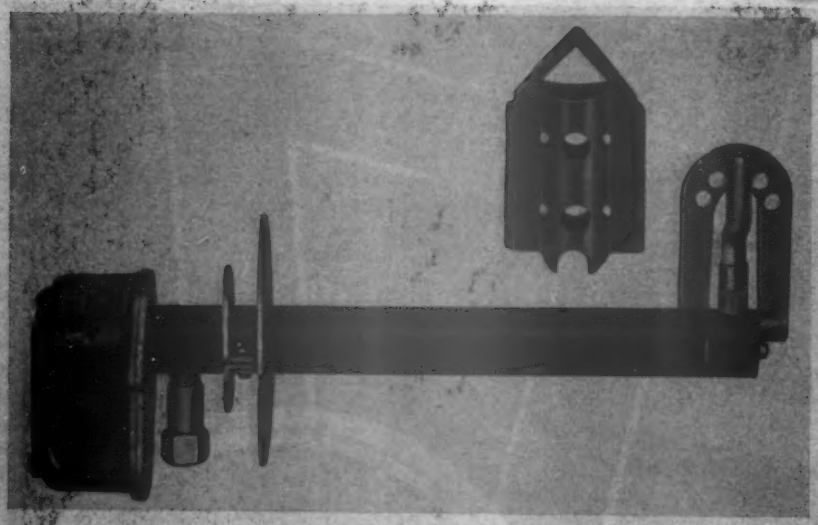


Fig. 6. "Differential" Type Actuating Element
Courtesy of Mercoid Corpn.

Safety Pilots—Their Design and Performance

(Continued from page 19)

ment and a torsion spring mechanism. Such devices operate on individual plug type burner valves. It is claimed that the material used in the thermal element is capable of withstanding 2700 degrees Fahrenheit without oxidation.

A second important classification of automatic devices designed to prevent escape of unburned gas is based on the type of linkage mechanism used between the thermal element and valve. Linkages, of course, need not necessarily be entirely mechanical, both electromotive and electromagnetic methods also being employed. Boilers and furnaces and similar appliances operating at comparatively high input ratings are commonly equipped with a thermal element which, in conjunction with an electric switch, closes or opens the circuit to a motor or a magnetic solenoid valve. Figures 6 and 7 illustrate designs which are applicable to utilization of motor and solenoid valves.

Fig. 8. Safety Pilot Operated by Thermocouple
Courtesy of Milwaukee Gas Specialty Co.

Fig. 9. Safety Device Actuated by Bimetallic Disc
Courtesy of Spencer Thermostat Co.

It will be noted from these last two figures that different types of electric switches are used. Safety devices illustrated in Figure 6 employ a mercury contact switch. Mercury is hermetically sealed in a glass tube and is not subject to atmospheric action or collection of dirt. One pole of the switch remains immersed in mercury and the other is actuated indirectly by a pilot flame through motion of a horse-shoe arm, to one end of which is attached a permanent magnet which, when near the movable switch arm, closes the circuit and holds the gas valve open. Extinguishment of the pilot results in removal of the magnet from the vicinity of the switch which under action of a small spring resumes its original position and opens the electric circuit causing the gas valve to close. A contact type switch is employed on the device shown in Figure 7. This type of switch is simple and less expensive than the mercury type but is subject to certain limitations. It is possible for its contacts to become dirty and any make and break switch may also spark or arc and develop pitted surfaces. Failures due to such causes are, however, on the safe side; that is, they would result in shut-off of the gas supply.

Another type of sealed mercury switch which has been utilized on automatic safety devices consists of a rocking tube. In one end of such a tube are two poles and when motion imparted by a thermal element tips the tube into a position such that this end is low, the mercury flows down and closes the switch.

Mechanical linkages are customarily a system of levers and springs and may be either a snap-acting or graduating linkage, or a combination of these. The essential difference between mechanical principles used is in the time of operation. Figure 1 shows a typical snap - acting linkage used with a bimetallic element. Figure 4 illustrates a graduating mechanism. Several devices do not utilize any linkage other than a pin through which motion of the thermal element is directly transmitted to the valve. An example of a simple direct-acting thermal element is the bimetallic disc type, previously re-

(Continued on page 66)

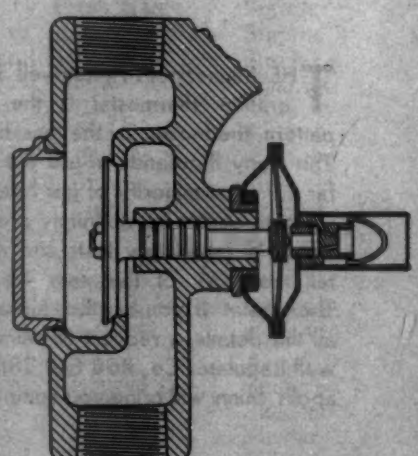


Fig. 9a. Sectional View of Bimetallic Disc Type Element Shown Installed in Fig. 9

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But... what a difference!

THESE OUTSTANDING PRODUCERS HAVE USED PATROL FOR THREE OR MORE SEASONS

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TAPPAN STOVE COMPANY
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HOW easy for one... just a turn of the gas cock. How awkward, nerve-racking, bothersome... yes and dangerous, for the other... using a match.

Today, with PATROL Safety Automatic Oven Ignition available to every range manufacturer, match-lighting the oven is comparable to hand-cranking the auto.

PATROL safety and convenience have been proved in the field on many thousands of ranges during the past three years, by the country's leading producers; on hundreds of thousands of water heaters over a period of ten years. This system has been reduced to a remarkable degree of simplicity. Not expensive. Easy to install. Field service practically nil.

PATROL Oven Ignition is a real sales feature; makes a wonderful floor demonstration; helps meet electric range competition.

Now is the time for every gas range manufacturer to adopt the PATROL System; complete the modernization of his product... and be in position to meet the sales arguments of electric cookery.

We shall be glad to furnish a sample PATROL System and detailed information on request, to range manufacturers.

THE PATROL VALVE COMPANY

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LOCUST AVE., Cor. W. 114th St. CLEVELAND, OHIO

BOOK REVIEWS

American Gas Practice, Volume II by Jerome J. Morgan, M.S., Ph.D., Associate Professor of Chemical Engineering, Columbia University. 1000 pages, 350 illustrations.

Although published as the second edition of Professor Morgan's work on the Distribution and Utilization of City Gas, its scope has been so greatly enlarged that it should really be looked upon as a new text book on these subjects. It now treats the Transmission, Distribution and Utilization of Natural and Mixed Gases as well as of Manufactured Gas. The theory and practical application of recent developments in these fields have been thoroughly discussed. The book is comprehensive, thorough, up to date, clear and definite. We consider it an outstanding reference work and text book on the subjects which it covers.

Entirely new material in the second edition includes:

Five New Chapters on

Combustion of Gases.

Atmospheric Gas Burners.

Heat Capacity, Heat Transfer, and Heat Losses.

Temperature Measurement and Temperature Control.

House Heating and Cooling.

There are also new or greatly enlarged sections on

Dry seal holders, underground storage, and purging.

Pipe joint developments and pipe protection.

Leak detection and use of odorants.

High pressure governors and gas mixers.

High pressure meters with testing and use for natural gas.

Calculations of distribution design.

Economics of gas transmission.

Combustion characteristics of mixed gases.

Gas burner design and adjustments for change-overs.

Calculations of heat transfer.

Methods of temperature control.

Air conditioning.

Diffusion flame and submerged combustion.

High temperature gas furnace design.

Table of Contents:—Storage of Gas, Mains and Services, Compressors, Governors, and Gas Mixers, Meters, Distribution Design, New Business Department, Combustion of Gases, Atmospheric Gas Burners, Household Appliances, Heat Capacity, Heat Transfer, and Heat Losses, Temperature Measurement and Temperature Control, House Heating and Cooling, General Industrial Applications, Gas Furnace Design Selection of an Industrial Fuel, Testing and Research Department, Safety, Accident Prevention, and First Aid, Accounting and Statistics, Principles of Rate Making, Public Relations.

Domestic Water Heating with Gas (A Manual for Salesmen)—By Charles W. Merriam, Jr. 108 pages. Price $1.50.

The data contained in this book was originally compiled for use in a small group of gas companies but proved so worthwhile extra copies have been printed.

The following quotations from the Preface of the book shows its scope:

"Particular stress is given herein to the domestic automatic gas storage heater as the type most frequently employed in mass selling. From previous experience this book appears to have its principal value as a handbook for salesmen, a study book for discussion groups and a stimulator in cooperative work.

"Avoiding as many technicalities as possible an effort has been made to ground the interested reader in a few of the most important fundamentals, to the end of acquiring a more convincing sales approach."

Contents: Engineering — So-Called; Types of Gas Heaters Available; Accessories to Automatic Heaters; Hot Water—How Much?; Gas Consumption; Water Piping and Installation Heater — What Size?; Competitors; Hot Water Uses and Sales Hints; Table of Physical Constants.

The gas industry should be indebted to Mr. Merriam for making available such a fund of valuable information on water heating with gas.

Comparative Water Heater Tests. A report of tests conducted at Massachusetts Institute of Technology at the request of the American Gas Association. 84 pages.

This report covers twenty-eight tests on the most modern types of oil, electric, coal and gas water heaters that could be secured. In the case of gas water heaters, fourteen manufacturers' products were selected and included quick recovery, internally fired and externally fired side arm heaters, slow recovery heaters, instantaneous heaters and conversion units.

The most striking conclusion drawn from the complete series of tests is that gas for domestic water heating can compete with other fuels.

In so far as water heater efficiencies are concerned this series of tests may be regarded as authoritative. They may well form a basis for future rate and sales policies.

The Science and Practice of Gas Supply, by Arthur Coe, Principal, The Gas College, Halifax, England.

Volume I—420 pages, 297 illustrations, 64 tables.

Volume II—504 pages, 400 illustrations, 70 tables.

Volume III will be published during 1935.

In the February, 1935, issue of the JOURNAL we published "The Engineer's Place in Today's Picture," in which Mr. Eric Larsen ably pointed out that gas engineers should adjust themselves to the times and enter the field of sales development where their services are not only needed but desired. Now come the first two volumes of Professor Coe's work which cover exactly the information needed by an engineer engaged in load building.

"Gas supply" is defined in the preface as "distribution and utilization." However, we gain the distinct impression that the primary purpose of the author is to fit the reader to handle any piping, metering or utilization problem which may arise on the customer's premises. He has done this with characteristic English thoroughness. The basic theories of gas chemistry and the physical laws of gases have been fully covered. Brief mention is made of the underdying principles of coal gas manufacture. The subject of street mains is ably handled in considerable detail. Thereafter follows material on service pipes, house governors, house piping, metering and ventilation. Volume II is devoted entirely to utilization problems as follows:

Chapter I. On the purpose and action of chimneys and flue pipes, and the energy expended in maintaining flow. The forces opposed to flow. Methods of dealing with adverse conditions; accessories, baffles, terminals, and hoods.

Chapter II. On radiation. The propagation, reflection, transmission,

(Continued on page 52)

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Here is a MODERN NEW YORK HOTEL that is not expensive!

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800 Outside Rooms with Bath, Shower, Radio
SINGLE from $2.50 DOUBLE from $3.50
RESERVATIONS ARE RECOMMENDED

Convenient to the places where smart, eager people want to go, the Hotel Montclair is well known and liked by New Yorkers themselves.

Here is a good place to dine—to dance—to meet friends as well as to stop when coming from out-of-town. The leading Fifth Avenue shops, Radio City, and the Broadway Theatres are within walking distance. In bad weather, you can use the convenient buses for almost any place you want to go.

The cost of the beautifully appointed comfortable rooms at the Montclair is indeed moderate for New York.

(Continued from page 50)

and absorption of light. The physiology of light. Luminous flux, luminous intensity, and illumination. The inverse square law and Lambert's cosine law. The measurement of luminous intensity and illumination. Polar curves. The laws of thermal radiation and the measurement of the quantity of heat radiated by gas fires.

Chapter III. On artificial light, with an account of the development of the design of gas burners based upon a study of flames.

Chapter IV. On the fundamental principles which govern the operation and design of atmospheric gas burners, with specific reference for uses other than lighting.

Chapter V. On the development of fireplaces and the use of gas for cooking, with a brief outline of the developments in the design of gas-heated cookers up to 1920, together with a detailed consideration of the applications of certain fundamental principles in physics to their design, and to which the most important recent developments are to be attributed.

Chapter VI. On the heating of rooms by thermal radiation, with particular reference to developments in the design and efficiency of gas fires, including the method for the calculation of the amount of heat required to warm a given room by convection. And the application of this method to the problem of the determination of the amount of radiant heat required to obtain comfortable conditions in a room.

We should be glad to see Dr. Coe's books in the hands of every young gas engineer. They are so clear and simple that they could be understood by most high school graduates; yet they are so thorough that an experienced engineer can learn much from them. From pure theory the author goes to such practical details as what tools are needed in laying a street main and how to build a chimney or flue. Of course some of the material, such as that on lighting, has little application to conditions existing in this country; but the amount of this is not great.

Professor Coe's books are timely. He has handled both theory and practice in a way that is readable and interesting. We congratulate him on a real contribution to the literature of the gas industry.

Distribution Conference Program

Plans of the Program Committee for the 1935 Distribution Conference to be held at the Hotel Cleveland, Cleveland, Ohio, May 2 to 4, have developed sufficiently to permit of announcing the first tentative program.

At the regular sessions a variety of timely and interesting reports will be presented by well-known specialists.

The tentative program follows:

THURSDAY, A.M., MAY 2

Opening Remarks
Erick Larson, Chairman, Distribution Committee, New York, N. Y.

Greetings
Alexander Forward, Managing Director, American Gas Association.

Paper: Main Extension Fittings
W. M. Henderson, Supt., Gas Disbn., Los Angeles Gas & Electric Corp., Los Angeles, Calif.

Paper: Appliance or Low Pressure Regulators
F. O. Suffron, Research Engr., A. G. A. Testing Laboratory, Cleveland, Ohio.

THURSDAY P.M., MAY 2

Paper: Rubber Compounded Gaskets for Pipe Joints and Clamps
K. R. Knapp, A. G. A. Testing Laboratory, Cleveland, Ohio.

Report: Subcommittee on Pipe Coatings and corrosion
C. F. Turner, Chairman, East Ohio Gas Co., Cleveland, Ohio.

Report to the Twelfth Annual Distribution Conference
Dr. Scott Ewing, Research Associate, U. S. Bureau of Standards, Washington, D. C.

*Paper: The Public Utilities' Survey Commission of Pittsburgh, Pa.
R. W. Miller, Hope Construction and refining Company, Pittsburgh, Pa.

Paper: Latest Developments in Portable Equipment
Earl H. Eacker, Asst. Engr. of Distribution, Boston Consolidated Gas Co., Boston, Mass.

FRIDAY A.M., MAY 3

Paper: Service Regulator Testing
Allen D. MacLean, Chief Engr., Pittsburgh Equitable Meter Co., Pittsburgh, Pa.

Paper: Factors and Trends in Meter Maintenance
R. W. McClenahan, Asst. Mgr., American Meter Co., Philadelphia, Pa.

Paper: The Need for Improving the Performance of Customers' Meters from the Customers' Standpoint
H. B. Andersen, Engr. of Distribution, The Philadelphia Gas Works Co., Philadelphia, Pa.

Report: Subcommittee on Meters and Metering
David P. Allen, Chairman, Washington Gas Light Co., Washington, D. C.

FRIDAY P.M., MAY 3

Inspection Trip—
A. G. A. Testing Laboratory

(The delegates will convene at 1:30 p.m. in the Hotel Cleveland, for a preliminary statement by R. M. Conner, outlining the plans for inspection of the Laboratory, and the necessary arrangements made in regard to routing of buses, etc., to the Laboratory.)

SATURDAY A.M., MAY 4

Report: Subcommittee on Pipe Joints
A. H. Anderson, Chairman, Detroit City Gas Co., Detroit,, Mich.

Paper: Effect of Sales Policies on Distribution Employee Training
T. J. Perry, Supt., Customers' Service Division, The Brooklyn Union Gas Co., Brooklyn, N. Y.

Paper: Installing and Servicing Appliances
H. D. Lehman, Supt., Customers' Service Division. The Philadelphia Gas Works Co., Philadelphia, Pa.

Report: Subcommittee on Cast Iron Pipe Standards
C. C. Simpson, Jr., Chairman, Consolidated Gas Co. of New York, New York, N. Y.

An outstanding feature of the Distribution Conference this year will be a series of dinner meetings to be held in lieu of the evening session originally planned for Friday, May 3. Full details in regard to these dinner conferences will be communicated to the members of the Section by mail well in advance of the Conference.

It has been tentatively decided to have six of these dinner conferences proceeding simultaneously, and the following general subjects were tentatively selected:

Pipe, including all problems relating to mains and services.

Meters.

Customers' Servicing and Appliance Installation.

Change-over from Manufactured to Natural Gas.

It is believed that this substitute for the former Open Forum will have the following advantages:

Eliminate the formality of a crowded Conference session.

Provide absolute freedom for the expression of viewpoints.

Each delegate may attend the particular dinner conference where topics of direct interest to him will be discussed.

An opportunity is furnished to meet and become better acquainted with fellow members.

It is planned to have a discussion leader at each of the dinner conferences who has taken a prominent part in the work of the Distribution Committee in the past.

The following have been requested to act as discussion leaders:

F. M. Goodwin of the Boston Consolidated Gas Company, Boston, Mass., to preside at the dinner conference on pipe.

J. D. von Maur of the Consumers Gas Company of Toronto, Toronto, Ont., Canada to preside at the dinner conference on meters.

F. C. Weber of The Brooklyn Union Gas Company, Brooklyn, N. Y., to preside at the dinner conference on customers' servicing and appliance installation.

H. E. Bates of The Peoples Gas Light & Coke Company, Chicago, Ill., to preside at the dinner conference on change-over from manufactured to natural gas.

H. W. Alrich of the Consolidated Gas Company of New York, New York, N. Y., to preside at the dinner conference on safety practices.

GPM
IRON HYDROXIDE

Removes those troublesome last traces at no extra cost

Gas Purifying Materials Co. Inc.
Foot of Halsey St
Long Island City, N.Y.
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MELTS SOFT METALS
Quickly! Economically!

The Johnson No. 305 Melting Furnace is used in hundreds of shops throughout the country. Sturdy construction insures long life. Four powerful Type A Bunsen Burners produce intense heat without forced air blast. Special draw-off valve will not freeze and permits metal to be drawn off as soon as melted. Free catalog gives full details of complete Johnson line of Bench and Floor Furnaces.

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Eastern Representative:
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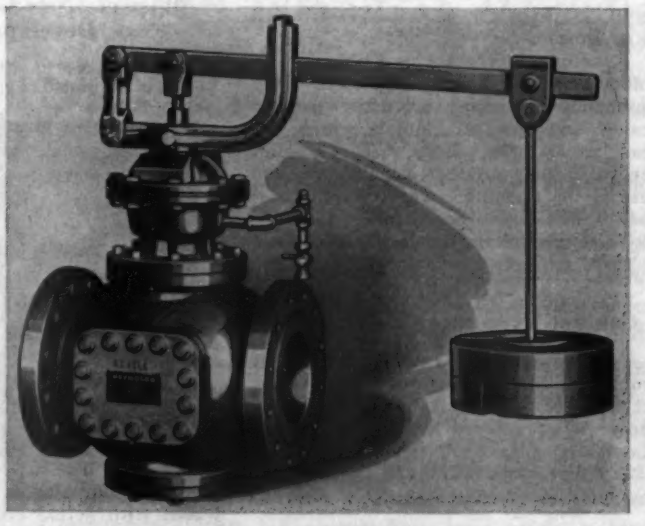
GAS REGULATORS
for every purpose!

As long as there is a need for gas control regulation, just that long will the name, REYNOLDS, be symbolic of dependable, accurate, gas control.

REYNOLDS Gas Regulator Company's more than forty years of leadership is proved by the hundreds of thousands of Reynolds Regulators that still give satisfactory performance after years of service.



REYNOLDS New High Pressure Line Regulator, without auxiliary bowl, features a wider range of delivery pressure control, (21 lbs. to 100 lbs.). In addition, Reynolds build High Pressure Line Regulators with auxiliary bowl where complete lock up is required. Write for details.

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Representatives:
Eastern Appliance Co.,
Boston, Massachusetts
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Avon, New Jersey
G. H. Uaekefer
428 Boyd St., Los Angeles

REYNOLDS
GAS REGULATOR COMPANY
Anderson, Indiana, U. S. A.

GAS CONTROL SINCE 1892

EQUIPMENT NEWS

New Model Hotzone Broiler Griddle

Welsbach Company announces additional models and improvements to their line of Hotzone Broiler Griddles.

The complete line now consists of three sizes—one section, two section and three section.

The improvements on these models are grease grooved griddle top and a

lever operated heavy adjustable broiling rack.

All Hotzone Broiler Griddles are equipped with the Welsbach Infra-Red Ray Burner.

Roasting covers are available for all models thus making it a general utility appliance on which you can cook griddle cakes, sausages, etc., and in which you can broil steaks, chops, fish, etc., and brown beans, potatoes, etc., and by the use of the roasting cover you can roast beef, pork and other meats. The gas cock settings permit a close temperature control without a thermostat.

Cabinet Type Steel Meter Panel

A cabinet type steel meter panel equipped with doors to protect and conceal meter and control connections is now being offered by Bailey Meter Company, Cleveland, Ohio.

A panel of this type with flush mounted equipment presents a pleasing appearance not only from the front, but from the rear as well. The neatly paneled doors are provided with a 3 point locking mechanism and a substantial cylinder lock which may be used to prevent unauthorized persons from gaining access to electrical connections, control mechanisms and meter adjustments located within the cabinet.

Rear View of Cabinet Type Meter Panel

These panels are thoroughly durable, being made of one piece sheet steel plate formed in proper sizes to give symmetrical and uniform appearance regardless of the quantity or type of meters and instruments to be installed on the board.

The entire panel is finished in a smooth and luxurious black tone which gives all the appearance of slate or composition with the durability of steel.

Unique Cross-Section Photos Illustrate New Gas Regulator Development

The streamlined flow of gas through the new Reliance Type "P" high pressure gas regulator is graphically illustrated with actual cross-section photographs in a bulletin just published by Reliance Regulator Corporation, Division of American Meter Company.

Direct comparison with the flow characteristics of conventional high pressure regulators is made possible by photographing the action of a fluid within both types of regulators, in each of four valve positions from "slightly open" to "wide open."

According to the manufacturers this new Reliance Type "P" regulator, in minimizing the scouring, turbulent action of the gas on the valve mechanism, makes available a more constant uniformity of regulation, increases capacity and saves both installation and upkeep costs.

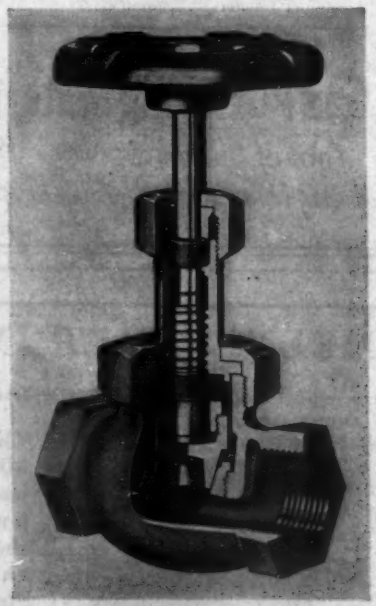
Bulletins Nos. 32 and 34 featuring this new regulating principle may be obtained by writing either American Meter Company, General Offices, 60 East 42nd Street, New York City, or Reliance Regulator Corporation, 1000 Meridian Avenue, Alhambra, California. Sales service west of the Rockies is handled by the Reliance Corporation and east of the Rockies by American Meter Company factories and sales offices.

Heavy Duty Broadside

Standard Gas Equipment Corp., 18 E. 41st St., New York, recently issued a broadside in colors, illustrating their line of heavy duty ranges for hotels, restaurants, hospitals, etc. This broadside has been mailed to all hotels, better class of restaurants, 6000 hospitals, 1800 school board officials, 1100 utility companies and 700 equipment dealers. It has been sent to this large list as a sales help to the utilities, dealers, and all handling this type of equipment.

New Plug Type Valve

The valve illustrated was designed for service where there is excessive wire drawing or destructive action of any kind on the valve seat or disc, such as when used for drip, drain, throttling, etc.



The Fairbanks Valve

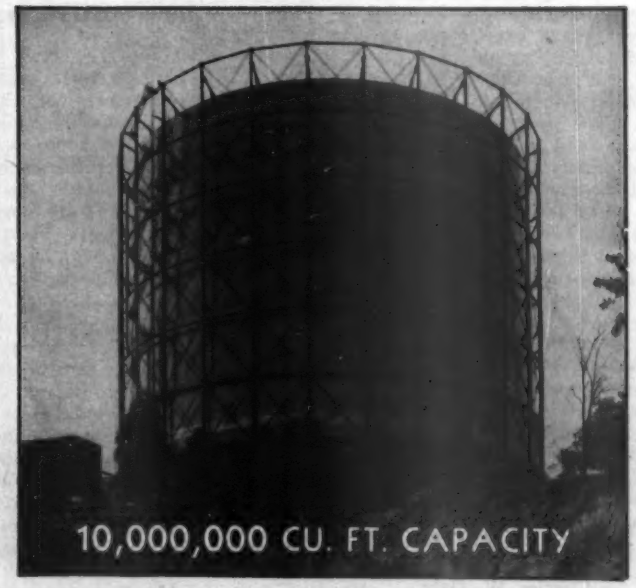
The long seated surface between the plug and the seat is said to insure added life. When these surfaces become scored or cut they can be readily reground or renewed if necessary.

Due to the angle of the plug and seat ring sealing surfaces, the stream flow is uniformly distributed when passing between these components.

The seat ring is screwed into the diaphragm, providing easy renewal. Both seat and disc are made of special nickel alloy of high Brinnel hardness and can be reground indefinitely without removing the valve from the line.

A shoulder on spindle affords a back seat which permits packing the stuffing box under pressure when the valve is wide open.

These valves are manufactured by The Fairbanks Company, New York.



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PURIFIERS · TANKS · CONDENSERS

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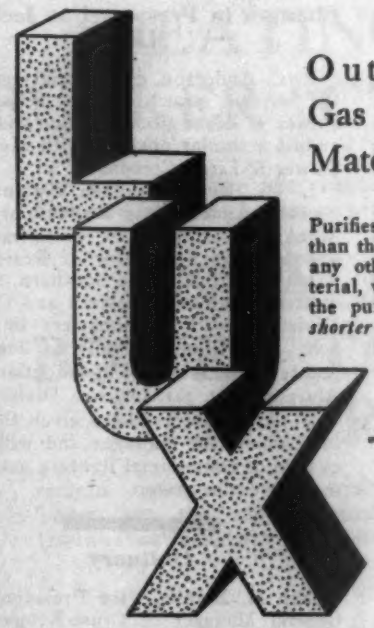

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Purifies *much more* gas than the same quantity of any other purifying material, while it also effects the purification in much *shorter time.*

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THE ALPHA-LUX COMPANY, Inc.

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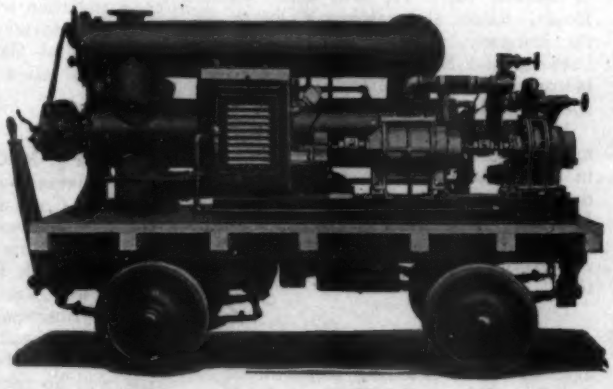
QUICKER PURGING AT LOWER COST



IMPROVED ROOTS-CONNERSVILLE HARRISON INERT GAS MACHINE

SINCE the introduction of Harrison Inert Gas Machines about two years ago, these units have found application in many leading gas works.

Built to produce inert gas containing less than 1% oxygen, and zero percent carbon monoxide, these units are economical to operate, and furnish an ample supply of inerts at low cost. Harrison Inert Gas Machines have been built in sizes ranging from 7500 to 40,000 cubic feet per hour, at 2 lbs. pressure; but other sizes and pressures can be arranged. Both portable and stationary types are available, driven by gasoline engines or electric motors, with either gas or oil burners.

Improvements include placing the cooling chamber in a horizontal position, thus reducing overall height to a minimum. Other refinements have been made, resulting in a simpler and more efficient unit.

Write for Bulletin 100-B12

Roots CONNERSVILLE

BLOWER CORPORATION

12th & Columbia — CONNERSVILLE, IND.

New York—Chicago—Pottstown, Pa.

Boston — Pittsburgh — Detroit — St. Louis—San Francisco—Los Angeles

Personals

Adolph Jansen, Jr., has joined the Sales Promotion Department of the Electrolux Refrigerator Sales Division of Servel, Inc. He will assist Hank Boyle, Sales Promotion Manager of the company, and will divide his time between the New York office and the factory in Evansville, Indiana, handling special dealer promotion.

Mr. Jansen has been associated with many well known advertising agencies in the past and for several years conducted his own advertising business. He most recently was Advertising and Sales Promotion Manager for the General Accessories Co., Inc., of New York City.

Charles E. Eble, who has been Manager of the Accounting Department of the Consolidated Gas Company of New York, has been appointed Assistant Controller of the Company.

Mr. Eble has been connected with the company for nearly twenty years. He was first employed on April 7, 1916 as a corridor boy in the Executive Department.

In June, 1917, he was transferred to the Accounting Department as junior clerk and since that time he has been affiliated with the Accounting Department of either the Consolidated Gas Company or the Astoria Light, Heat, and Power Company.

On June 11, 1923, Mr. Eble was appointed Assistant Chief Clerk of the Accounting Department of the Consolidated Gas Company. On April 1, 1929 this title was changed to Assistant Manager of the Department. He was promoted to Manager on July 1, 1929.

J. E. Lamping has been appointed manager of the Cleveland branch of the American Radiator Company succeeding L. O. Stearns, who has been transferred to sales headquarters in New York. Mr. Lamping has been with the American Radiator Company since 1907, having worked in the Cincinnati branch of the company from that year until 1916 when he was transferred to Cleveland as chief clerk of the latter branch. Since 1928 he has been employed in sales work at Cleveland.

R. T. Dinwiddie has resigned as Manager, Refractories Division of The M. W. Kellogg Co., of New York City to become Vice President of Refractory & Engineering Corporation, 381 Fourth Avenue, New York City. In this new position, Mr. Dinwiddie will be in charge of sales of the company's complete lines of refractory cements and insulations.

M. B. Buckley, who for the past seven years has been New Business manager of the Kansas City Gas Company has taken a short leave of absence from the company. Herbert C. Porter, who for the past twenty years has been commercial manager of the St. Joseph Railway, Light, Heat & Power Co. at St. Joseph, Mo., has been selected to succeed Mr. Buckley.

Mr. Buckley requested a leave of absence from the company due to poor health. He intends to rest for a short time and then will go to Topeka, Kans., where he formerly was connected with The Capital Gas and Electric Co., to do special sales work with that organization.

Edwin J. McGlinchey, who has been New Business manager of the Knoxville Gas Company at Knoxville, Tenn., has been chosen to replace Herbert C. Porter as New Business manager of the St. Joseph Railway, Light, Heat & Power Co. Mr. Porter has been chosen as New Business manager of the Kansas City Gas Company.

Mr. McGlinchey's position in Knoxville will be taken by **Charles W. Gale** of the Public Service Company of Colorado.

Mr. McGlinchey has been with the Doherty organization since 1915 when he started in Toledo as power engineer with the electric company. Since that time he has been connected with a great many Doherty properties. In 1920 he was made New Business manager of the Hattiesburg Traction Company of Hattiesburg, Miss. Six months later he was transferred to the Meridian, Miss., property as New Business manager. The following year he served as New Business manager of the Doherty property at Bristol, Va.-Tenn., and from 1922 to 1924 was the New Business manager of the Knoxville Gas Company at Knoxville, Tenn. From 1924 to 1925 he was transferred to Portsmouth, Ohio, as New Business manager and late in 1925 was moved back to Knoxville where he has been New Business manager of the gas property there since that year.

Mr. Gale is well known throughout the Doherty organization and he has had a wide variety of engineering and sales experience. Before joining the Doherty organization in 1922 he worked as an electrical engineer in Seattle, later as a radio engineer in Alaska and at one time was an electrical and construction engineer in China.

When he joined the Doherty company in 1922 at Denver he was made gas engineer. In 1925 he was promoted to supervisor of the New Business commercial and industrial activities of the gas department.

Resigns As Directors

At a meeting of the Board of Directors of The United Gas Improvement Company held March 27th, the resignations of Floyd L. Carlisle and George H. Howard as Directors of the Company were accepted. The By-Laws of the Company were accordingly amended reducing the number of Directors from sixteen to fourteen.

J. F. Donovan Joins Advertising Agency Staff

J. F. Donovan, for the past eight years general sales manager of the Standard Gas Equipment Corporation, has resigned his position to become associated with the Gas Merchandising Division of Williams & Saylor, Inc., New York, merchandising and advertising counsellors. He will work jointly with A. W. Humm in directing the activities of the Gas Merchandising Division of the company.

Mr. Donovan brings to William & Saylor, Inc., and its clients in the gas appliance field a broad experience in the merchandising and sales promotion of home appliances gained through years of service both as sales manager in the gas range industry and as an executive in the advertising agency field. For some years prior to his connection with the Standard Gas Equipment Corporation he was engaged in advertising agency work.

The association of Mr. Donovan with Mr. Humm in jointly directing the activities of the Gas Merchandising Division of Williams & Saylor, Inc., brings together again two men who for years were closely associated in their work with the Standard Gas Equipment Corporation. Prior to coming to Williams & Saylor in the Fall of 1933, Mr. Humm was Sales Promotion Manager of the Standard Gas Equipment Corporation. He likewise has a broad background of experience in the merchandising and sales promotion of home appliance products involving the use of gas.

Changes in Personnel at Jackson, Miss.

R. C. Anderson, commercial manager for several years of the Mississippi Power & Light Co., Jackson, Miss., assumed a similar position with Memphis Power & Light Company.

L. M. Taylor has been appointed to succeed Anderson as Residential Sales Manager, and Mr. P. O. Smith has been appointed as Supervisor of Residential Sales Activities in the Southern, Southwestern, Natchez, Western and Central Divisions, with headquarters in Jackson. Mr. John Kimball has been appointed Supervisor of Residential Sales Activities for the Jackson Division.

W. A. Moore has been given the title of Commercial Manager and will have charge of commercial lighting activities for the entire state.

Obituary

John H. Blanke, Vice President and General Manager of Cruse-Kemper Co., Ambler, Pa., died March 24th at the age of 62. Mr. Blanke was associated with the company since its inauguration. He was a leader in the gas holder industry; always loyal to his fellow workers and to his customers. He was admired and respected by all who came in contact with him.

All sizes up to 3,400 cu. ft. capacity

Meters
Diaphragms
Repairs
Provers
Pumps
Calorimeters
Wet Meters
Gauges
Apparatus

METER REPAIR PARTS

FOR

ALL MAKES - ALL SIZES OF METERS

LARGEST GAS COMPANIES NOW USING OUR PARTS

SEND FOR OUR CIRCULAR ON METER REPAIR PARTS

SAMPLES AND PRICES GLADLY SENT

—•—

LAMBERT METER CO.

BUSH TERM. BLDG. 4, BROOKLYN, N. Y.

HEATING BUNKER "C" OIL

for carburetting gas requires high pressure and high temperature.

ANDALE BOWED TUBE HEATERS

remain tight and are easily cleaned. These are the requirements for continuous satisfactory operation.

ANDALE COMPANY

1600 ARCH STREET

PHILADELPHIA

☆

WILLIAMS & SAYLOR INC

announces that

J. F. DONOVAN

will with **A. W. HUMM**

direct the activities of its

GAS MERCHANDISING SERVICE

☆

The gas merchandising division is now in the second year of its existence.

Founded to give exclusive attention to the sales problems of the industry, it will continue to devote the specialized experience of its staff to gas merchandising in all of its ramifications.

We invite your scrutiny of our accomplishment up to the present, the accomplishment of a sound, substantial organization with its mind on its work and its feet on the ground.

We start with a knowledge of your markets and your objectives. We hold the deep-rooted conviction that a basic understanding of your particular problems will bring you quicker results and surer economies.

Your inquiries as to the scope of our service and its application to your needs will receive our personal, interested attention.

☆

GAS MERCHANDISING DIVISION

Research · Advertising · Merchandising

Directors: A. W. HUMM · J. F. DONOVAN

WILLIAMS & SAYLOR INC

485 MADISON AVENUE · NEW YORK

NEWS of the GAS INDUSTRY

Gas Range Sales Contest Off to a Fine Start

The National Gas Range Sales Contest is in full swing. All over the country, gas companies and dealers have entered into the spirit of this important movement with a manifestation of enthusiasm and energy that is bound to make itself felt.

The eagerness of gas companies and dealers to get going is manifested by the fact that 223 have already started their drives or will within a few days. Out of the total entries, 103 gas companies started their campaigns in March. One hundred and twenty have selected April as their starting month.

Altogether, 281 gas companies have registered. These 281 live companies represent more than 60% of all the domestic gas meters in the country. This number actually is larger because in quite a few cases the parent company alone is registered without individual entry of subsidiary companies. Multiply this number of gas companies by the number of dealers co-operating with each company and you have a sizeable army in the field, vigorously fighting for increased sales of modern gas ranges.

Gas range manufacturers on the sidelines are cheering on the contestants, lending them all the support and co-operation within their power. Manufacturers of other domestic gas appliances are watching with a great deal of interest. And who knows what may happen as a result of this tremendous drive all along the line as far as gas appliance sales and the building up of the domestic gas load are concerned? All in all, it's a grand, good, healthy contest, full of pep and thrills that is going to make the public more gas cooking conscious than it ever was before. It's a sign that the gas industry has taken a fresh grasp on its position with a firm determination to hold fast to that which rightfully belongs to it, namely, the supremacy of gas in modern cookery.

Practical Answers to Pertinent Questions

A number of questions have developed since the announcement of this contest and for the benefit of all interested parties, here are the answers:

When is a range SOLD?

For purposes of reporting, a range is considered SOLD when it has been installed, without regard to the terms of sale. Any other interpretation would involve so many variations and complications that reporting would be a very difficult matter.

How are the cash prizes to be distributed?

Each division will have three complete sets of prizes. One set of prizes will go to the registered Utility reporting the largest dollar range sales per domestic meter, and these sales shall include sales by the Utility and any and all local dealers combined. It is necessary for the registering Utility to procure some kind of report from its local dealers on fully equipped ranges and add them to its own sales figures. For example—In Division III we will assume that The Consumers Gas Company of Decatur, Ohio, reports the greatest dollar sales per domestic meter in this division. This company would then receive four prizes totalling $560.00 to be distributed to the four highest ranking sales person within the territory, without regard to whether they are employed by the Utility or dealers.

We will assume that the Public Utilities Service Corporation of Danford, South Carolina, has the second highest

"Quints" Hospital Theme of Display

This looks like a scene out in the country, but the picture was really taken in the main showrooms of the Philadelphia Gas Works Company where Philadelphia's first annual Gas Refrigeration Show was held during the week of March 25-30. The main attraction of the Show, sponsored by the Gas Company, was a full-size reproduction of the little Dafoe Hospital in the Canadian northwoods where the famous Dionne quintuplets are being reared. The replica of the hospital is shown in the background above with Miss Peggy Barnum, one of the Gas Company's home service staff, who acted as a nurse to the life-size dolls who represented the quintuplets. At the left is Mr. Julian Eveque, an engineer of Servel, Inc., who installed an Electrolux refrigerator (Operated with kerosene in the absence of gas) in the Dafoe Hospital after its completion last September. This refrigerator was also on exhibition at the Philadelphia showroom, having been replaced by an Electrolux of another type.

Exhibit of Philadelphia Gas Works

Byllesby Engineering

and Management Corporation

Wholly-owned subsidiary of

Standard Gas and Electric Company

231 South La Salle Street, Chicago

New York Pittsburgh San Francisco

"We use CHACE Exclusively"

The COLUMBIA BURNER Co.
Toledo, Ohio

CHACE THERMOSTATIC BIMETAL
"It Bends with the Heat"

For positive and unfailing automatic action at minimum cost you just cannot beat Chace Thermostatic Bimetal. The first cost is low, there is no up-keep or service expense and its life is of infinite duration. If your problem is one of controlling temperature or a matter of securing reliable automatic action as change in temperature takes place, consult Chace engineers regarding the most suitable type of Bimetal for you to use.

W. M. CHACE VALVE CO.
1610 Beard Ave. [illegible]

REQUIRES NO MIXING

LAVINO GRANULAR OXIDE

This exclusive Lavino Product will actually save you money in PURIFICATION COSTS because it —

GIVES far greater purification for the dollar expended . . . REQUIRES no mixing . . . IS EASIER to handle and fill boxes . . . CAN be used in your present boxes . . . REQUIRES no mixing . . . GREATLY increases box capacity . . . ALLOWS fouled material to be sold. BE CONVINCED.

Write for literature or ask one of our Purification Specialists to call—without obligation.

E. J. Lavino and Company

Bullitt Bldg., Phila., Pa.

Chicago Pittsburgh

INCREASES BOX CAPACITY

CF

FULTON
Cut-Out
Latch Regulator

It Stops the Flow of Gas if Pressure falls too low

ON a low-pressure burner or furnace, the Fulton Cut-Out Latch Regulator stops the flow of gas if pressure falls below the desired minimum. Whenever that happens, the cut-out latch will operate automatically to bring the valve to its seat and lock it there. Flow will not resume until the operator goes to the valve and opens it by hand. This eliminates completely the hazard for which the regulator is designed. Write for C-F Bulletin 2987.

The Chaplin-Fulton Manufacturing Co.

28-40 PENN AVE. PITTSBURGH, PA.

(Continued from page 58)

sales per domestic meter. This company will also receive a complete set of four cash prizes totalling $560.00 to be distributed in the same way.

The Mansfield Gas Light Company of Waynesville, Wisconsin, may have placed third, in which case they would receive another set of four prizes totalling $560.00 to be distributed in the same way.

In Division I, the prizes will be awarded in the same way except that there will be three sets of seven prizes each totalling $675.00 per set.

Missouri Association Holds Convention

The twenty-ninth annual State Convention of the Missouri Association of Public Utilities will be held April 24, 25, and 26 at Kansas City, Mo., at the President Hotel. President Fred Karr, of St. Joseph, Mo., will preside at the business sessions.

Among the speakers this year will be: Congressman Joseph B. Shannon, Washington, D. C.; Maj. Alexander Forward, New York City, Managing Director, American Gas Association; Dr. E. T. McGaugh, Jefferson City, Mo., Missouri State Health Commissioner; Prof. George W. Stephens, St. Louis, Mo.; Dean of Economics, Washington University; Frank C. Lynch, Managing Director of the Kansas City Safety Council; E. L. Hough, St. Louis, Mo., Union Electric Light and Power Company.

Protect Your Industrial Installations.
The
"LOW WATER GAS CUT-OFF"

¾"
1"
1¼"
1½"
2"
2½"
3"
4"

P. M. LATTNER MFG. COMPANY
CEDAR RAPIDS, IOWA

Convention Calendar

March

April

15-17 Mid-West Gas Association, annual convention, Hotel Fontenelle, Omaha, Neb. R. B. Searing, sec., 302 Utilities Building, Sioux City, Ia.

25-26 Missouri Association of Public Utilities, annual convention, President Hotel, Kansas City, Mo. N. R. Beagle, sec., 101 West High St., Jefferson City, Mo.

May

2-3-4 American Gas Association Distribution Conference, Hotel Cleveland, Cleveland, Ohio.

6-9 Natural Gas Department American Gas Association, annual convention, Hotel Peabody, Memphis, Tenn.

7-9 Pennsylvania Gas Association, annual convention, Skytop Club, Skytop, Pa. F. W. Lesley, secretary, York, Pa.

13-15 American Gas Association Production Conference, Hotel New Yorker, New York, N. Y.

June

10-11 Canadian Gas Association, annual convention, Quebec, George W. Allen, secretary, 21 Astley Ave., Toronto, Canada.

October

14-18 American Gas Association, 17th annual convention, Atlantic City, N. J. Alexander Forward, managing director.

Arc Welding Used in Construction of Large Gas Pipe Line

A new gas pipe line, over 3000 feet in length and built of 20 inch pipe with all field joints arc welded was recently completed over one of Cleveland's longest bridges, for the East Ohio Gas Company. The new line hooks into existing services at either end of the bridge.

This line is constructed of 40 foot pipe, factory welded from 20 foot lengths. The pipe is ⅜ inch wall thickness, 20 inches diameter with ends beveled to 45 degrees. Total weight of pipe used over the bridge was 126 tons. The total length of the line from one end of the bridge to the other is 3017 feet.

The line was strung on the paved roadway of the third level of the bridge. In order to get the pipe up on this level it was necessary to hoist it with chainfalls onto a small truck, which hauled it to position. The truck was fitted with a dolly which facilitated the placing of the pipe.

The pipe was mounted on roll and saddle mountings permanently bolted to the beams of the bridge. The pipe was lined up, with a space of ⅛ inch between joints. After the pipe was in proper position and blocked up, five tack welds were made on the joint to hold it in place for starting to weld. Plain butt joints without backing up rings were used. Two beads were run per joint, except where the opening between the pipe ends exceeded ⅛ inch, in which case a sealing bead was used. One bead was laid clear around the joint and nearly flush with the pipe. The second bead was laid to make a flush weld. In making the first few welds, it was possible to roll the pipe, but after four lengths of pipe has been welded, the remaining joints had to be welded without turning the pipe.

A total of eight expansion joints of the slip type were used on the line. The slips of these expansions were made of stainless steel to prevent corrosion. Each slip can move a maximum of eight inches. Six of these were single and two double, the latter placed at the apex of the bridge. The pipe was welded to the nipples of the expansion joints. After welding, all joints were annealed. Approximately 30 days were required for laying and welding the pipe.

The welding current was supplied by one of the new 300 ampere gasoline engine driven "Shield Arc" welders manufactured by The Lincoln Electric Company, Cleveland, O.

When completed, the line was tested with 85 pounds pressure. In operation the line will carry a pressure of approximately 40 pounds. Regarding the effects of temperature variations it was found that the line expands or contracts at the rate of .2 inches per degree change in temperature.

Welding a joint on the new 3017 foot 20 inch gas pipe line in Cleveland, said to be the largest gas line ever strung over a bridge.

THE GOODMAN STOPPER

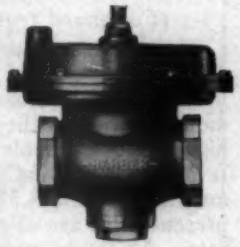
The Reliable Shut-Off for Street Mains

Equipped with Improved Patented Locking Sleeve, which locks both handles to the pipe. Stopper cannot slip. Gas cannot pass.

Safety Gas Main Stopper Co.
523 Atlantic Avenue, Brooklyn, New York

SAVE *on Gas Bills!*

That's what everyone of your customers is trying to do—get gas bills down as low as possible. With a BARBER Gas Pressure Regulator on any gas appliance, gas bills will be much lower. Show one to your customers, take the orders and the profit. Write for details, and new catalog No. 35.



The Barber Gas Burner Co.
3702-4 Superior Ave.
CLEVELAND OHIO

Made in ¼", ⅜", ½", ¾", 1", 1¼", 1½" and 2" sizes.

ALFRED I. PHILLIPS

CONSULTING ENGINEER

Rate Development **Valuations** **Reports**
Design **Management**

122 GREENWICH STREET **NEW YORK**

HIGH PRESSURE GAS METER SHUT-OFF VALVE—*another Kitson Product*

It's Gas Tight under all Pressures—Easy to turn-out (never binds)—Self-Cleaning (cannot clog)—Furnished in sizes ¾", 1", 1¼". Ask for full details and prices.

Remember, Kitson also makes a full line of GROUND KEY GAS STOPS; COMPRESSION STOPS, AND WASTES; BOILER DRAW-OFFS—and the well known line of Lovekin "Safety" Valves. Literature and prices upon request.

KITSON CO.
261 No. BROAD ST
PHILADELPHIA PA.

GAS SERVICE STOPS

SINCE 1869 Hays has built dependable brass products for the Gas Industry. Standard Special Weight, Heavy Pattern and High Pressure Stops to meet all requirements are manufactured by Hays in a full range of sizes. Write for Catalog No. 4 today.

HAYS MANUFACTURING CO. ERIE, PA.

For Sale - Like New - DISMANTLING PLANT - Used 90 Days

Cap. 600,000 C.F.H.

GAS EQUIPMENT

1—Rotary Disp. Meter. 26" x 78", with Max. Rec order.
3—Exhausters. 20" x 60"—33 c.f. per rev. 3-ph. 60-cy. Motors.
2—Boosters, 20" x 32½" x 60". 19½ c.f. per rev. with 150 HP. Synchron. Motors, Panel, etc. 3-ph. 60 cy.
2—Cottrell Elec. Precipitators, 7'2" x 17' 8½". High tension, 60,000 v. elec. equipment.
1—Thomas Record. Calorimeter. Range 0-300, with Leeds Record. Device.
65-G-E., F-M., Motors, 3-ph. 60-cy. Induct. & Synchron. 3 HP to 150 HP.
Now Erected — All Connected

Meter
Exhausters
Boosters
Precipitators
Calorimeter
Gauges
Recorders
Gas Coolers
Scrubbers
Pumps

Phone - Wire - Write

Write for list

PRESTFUEL CORPORATION
P. C. SMITH, Agt.
11741 - Buffalo Ave.—CHICAGO

Phone So. Chgo 9094

The Customers' Index Rate

(Continued from page 31)

These customers used 6,606.2 M.C.F. during the year, so if the index were to be based on a twelve months' average they would have a like amount available at the low rate. It is to be noted that, using the twelve months' index, 724.5 M.C.F., 11% of present sales are affected by the low rate. As fewer months are used in the index, the maximum amount available, at both Normal and Index rate, increases, while the amount of present consumption exposed to the low rate decreases. This exposure of present sales to the low rate tends to disappear as more gas is used. It makes no difference to the customer, who uses exactly the same amount each month how many months are used to find the index. With the irregular customer selection of index by taking the average of a few high months tends to equalize the two extremes.

From the above, it should be clear that the Customers' Index determines not only the point at which the Index Rate becomes effective but also the maximum monthly quantity of gas which may be purchased at that rate. If, for example, the index of a certain customer is found to be two thousand cubic feet (expressed as 20), he may buy not more than an additional two thousand cubic feet at the low rate, while if it should be four thousand cubic feet (expressed as 40) he could buy another four thousand cubic feet at the low rate. A consumer whose Index would figure out to less than one thousand cubic feet (or ten), but otherwise qualifying for the rate, may take the one thousand cubic foot index, step up his consumption of gas, and buy one additional thousand cubic feet at the low rate.

The Normal Rate selected is an optional rate now in use. It is the rate generally selected by consumers who use gas in the profitable brackets. As is usual, it is based on the requirement of gross revenue necessary to carry on. The Customers' Index Rate, on the other hand, takes into consideration that additional gas, when supplied to present consumers, can be delivered at a much lower cost, since the Normal Rate carries about everything except the added production expense.

The clerical work is simple. No billing complications appear. Each Customer's Index can be quickly determined at the time of taking the application for the rate and, once established, should not usually require further attention. It could almost go on the addressograph plate. Provision is made for its readjustment, however, at reasonable intervals, to take care of any who might benefit thereby.

Average of Highest	*Monthly Total Index*	*Annual Maximum Sales Normal Rate*	*Annual Maximum Sales Index Rate*	*Annual Present Sales Affected*	*Percent Present Sales Affected*
12 Mo.	550.6	6606.2 MCF	Same	724.5 MCF	11.0%
10 "	590.0	7090.8 "	as	546.9 "	8.3%
9 "	608.3	7299.6 "	Sales	483.2 "	7.3%
8 "	630.4	7564.8 "	on	413.3 "	6.3%
7 "	650.5	7806.0 "	Normal	356.6 "	5.4%
6 "	673.4	8080.8 "	Rate	292.8 "	4.4%
5 "	696.8	8385.6 "		231.4 "	3.5%
4 "	731.3	8775.6 "		164.2 "	2.5%
3 "	764.3	9171.6 "		110.0 "	1.7%
2 "	813.1	9757.2 "		54.0 "	.8%
1 "	867.2	10406.4 "		0.0 "	.0%

This is not a "Free" gas plan, it is an effort to get away from class rates while retaining the benefits of class rates, and more. If it proves acceptable to our customers, and that is the real test, we should be able to sell more gas to present customers, without dictating the kind of appliance, and at a profit in every block.

What Refrigeration Has Done for the Gas Industry

(Continued from page 35)

A word must be said about the picturesque gas refrigeration campaigns staged under the sponsorship of the A.G.A. Refrigeration Committee, the two most outstanding of which are the one waged last year and the one now in progress.

Last year's campaign, known as the "Go-Getter" or "Blue Vase" Contest, has been spoken of as the most successful gas appliance selling campaign in the history of the American Gas Association. The campaign now under way, headed by J. J. Quinn, in which the winning of seven silver "Prosperity Cups" is the goal to be achieved promises to show even higher results than the "Blue Vase" contest and its success is as assured as is the energetic range campaign being conducted under the leadership of Mr. H. M. Brundage, Jr.

It seems almost superfluous to argue that the inclusion of the Electrolux refrigerator as part of the kitchen equipment was requisite in modern kitchen-planning. It is quite obvious that a kitchen without a gas refrigerator, no matter how fine the rest of the gas appliances might be, would not be an "all-gas kitchen."

Combination Range and Automatic Storage Water Heater Sale

(Continued from page 43)

the combined service to modernize the home.

We paid our employees 2½% commission on all leads turned in which resulted in sales. For the salesmen, we offered substantial prizes based on the dollar volume of sales.

During this campaign we also ran newspaper advertising which tied up with our broadsides and our bill envelopes which carried the same message.

A fifteen minute broadcast from the renovized house on the modern appliances was also used.

In the two months period we sold 212 ranges and 72 automatic storage water heaters.

This campaign was one that will help us this year as we were able to get our new ranges before the public and it also popularized our automatic storage water heaters. We were able to get the idea of combined service to the public—that it is gas service applied not only to one appliance but to a group of appliances which make a home modern and comfortable.

Rental Plan Triples Water Heater Installation

(Continued from page 41)

heaters and conversion burners. With the water heaters, the windows were supplemented by one newspaper advertisement and posters on the service trucks. But, all in all, the

drive was one of the least expensive ever conducted by this property.

"The campaign was one that didn't need expensive promotion because the rental idea was one with appeal, something people were really interested in and talked about," says Mr. Horne. "The people it sold were mainly experimenters, people who weren't entirely sold on gas and wanted to try it out without a heavy investment. We were very pleased with the high class business resulting. Most of the renters really use a lot of gas. I personally am convinced that the rental plan offers an opportunity to break into a new market. It gets the interest of people we couldn't otherwise attract."

Southwestern Division A.G.A. To Meet at Memphis

The Southwestern Division of the American Gas Association could not have chosen a more favorable time for its annual convention than the dates which it has selected, May 7, 8 and 9, which fall right in the midst of the fifth annual Memphis Cotton Carnival.

Paul Renshaw, of Memphis Power and Light Co., bugleman of the convention which is slated for the Bluff City and Peabody Hotel, has warned the 450 delegates from Mississippi, Alabama, Tennessee, Georgia, Arkansas, Texas, Oklahoma, Louisiana to make sure they have rooms reserved in ample time beforehand, as there will be the greatest rush probably in Memphis' entire history for places to stay during carnival week, May 6-11.

This year's convention of the Southwestern Division will see a more acute problem of competition than any experienced beforehand—this in the form of Government TVA electric power. It is forecast that one of the chief themes of the convention will be setting the delegates wise on ways and means of promoting gas use wherever it can be substituted for electricity. The Memphis Power & Light Company, ever since the overwhelming vote of 17 to 1 registered in Memphis last fall in favor of TVA distribution in the city, has been plugging gas no end, conducting contests with gas ranges as prizes, and featuring gas appliances, such as "chill-chasers" (quick heaters) to the subordination of things electric.

Mr. Renshaw forecasts that the three perennial phases of gas service will be discussed at the convention: service, production-transmission and distribution. W. J. O'Brien, President of the Memphis Power & Light Co., will head the general arrangements committee, and J. J. Brennan is chairman of entertainment.

REACTIVITY OF PULVERIZED FUELS

The coke sample serving as a standard for the reactivities with carbon monoxide (unity) passed through a screen of 0.166 in. mesh and was retained by 0.1 in. mesh. It was decomposed in a column of 0.875 in. diameter in a gas stream of 20% carbon dioxide flowing at 5 liter per hour carrying 50% by volume of nitrogen. The results are not very accurate, as most of the cokes treated at high temperatures became coated with a thin film which is generally less reactive than the coke itself; this resulted in a slowing up of gasification. The possibilities of avoiding the formation of the coating are discussed. The determination of the reactivity at low temperatures is also treated and curves are presented for cokes from various raw materials showing the relation between reactivity and temperature. It was found that the reactivity of a coke at low temperatures becomes less, as its coking temperature increases. The experimental apparatus and procedure are described. A plot of experimental data for the reactivity of cokes with carbon dioxide at 900° and with steam at 1000° is given.

J. W. Cobb, Chaleur & Ind. 15, No. 167, 377-86 (1934)

VERTICAL CHAMBER OVENS WITH WATER-GAS CHAMBER

A disadvantage of the method of producing water-gas in vertical chamber ovens by passing superheated steam through the charge during the latter part of the coking period lies in the resulting fluctuations in the composition of the gas produced. This has been overcome by dividing the oven chamber into two compartments (C, Cl) by means of a vertical partition and using C as a coking chamber and Cl as a water gas chamber; the latter is charged with small coke and is so designed that the water-gas produced continuously therein mixes with the carbonization gases from C just before the mixed gases enter the gas offtake. Some details are given of the design and operation of a plant of this type which has been erected at the Lodz gas-works. An improved thermal efficiency is claimed for the process and the possibility of similarly modifying inclined and horizontal chamber ovens is suggested.

W. Bueb and A. Thau. Gas- u. Wasserfach, 77, 619-24 (1934).

JOURNAL
COMPUTERS
FOR
LOW
PRESSURE
PRICE
2.50
EACH
FOR SALE
AMERICAN
GAS
JOURNAL
53 Park Place
NEW YORK

Gas Pressure Controls

(*Continued from page 22*)

sulting in an equal shortening of the distance between its two ends not having the original effect. This factor makes it impossible to use the distance which the set screw has been turned as an indication of the uniformity of regulator performance. Even on new springs of the type and quality ordinarily provided with regulators unequal lengths or diameters of wire in the springs would also make comparative performance difficult to check.

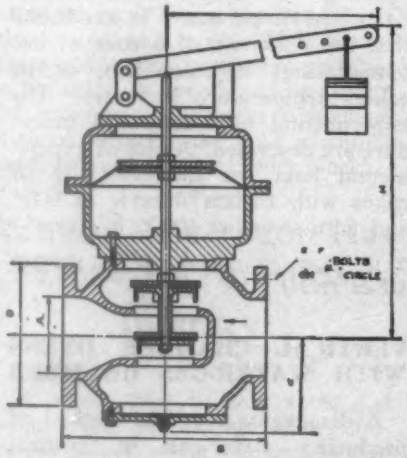
A spring requires a housing and more complicated design and construction than is required with weights. This complication may result in an increased cost of spring loaded regulators and a lack of simplicity. The use of a housing such as practically all regulators using spring loading possess, eliminates the advantage of visible operation of the valve stem or lever arm. With a lever arm type of regulator several important features of operation may be easily checked by hand operating the lever arm which is not possible with spring loading. On a regulator which has a small build up of lock up pressure a slight additional manual force applied to the lever arm to assist closing will often eliminate the necessity for changing the valve discs whereas with a spring loaded type the amount of force that could be secured by releasing the compression of the spring would not produce the same results.

Where springs are used the design should provide a double or multiple coiled spring as they provide and maintain uniformity of compressibility over longer periods than single coiled springs. A double or multiple coiled spring will allow the use of larger diaphragms without auxiliary equipment thus providing more sensitive regulation.

Methods of Control

Method of control is the means used to change and regulate pressures and in this discussion will be confined to the use of automatic regulators and their auxiliary equipment.

An important consideration in determining the method of control to be used is the selection of the location at which it is desirable to maintain a certain pressure. One of the most important locations on a distribution system is where the pressure is the lowest during the peak load. This minimum pressure location may vary from day to day depending on the demand of certain large consumers or the cumulative effect of numerous small consumers. Since the minimum pressure location may vary some point or points which would be indicative of pressure conditions at the lowest points must be selected. It is unnecessary for the pressure at this location to approach the minimum pressure but by a large increase in the volume of gas passing as indicated by a pressure drop or rate of flow would be a criteria of conditions at the vital points. The problem of control location may also be expressed as the providing of some method of conveying the conditions at the vital point to the location of regulation. Simplification is secured when the method of conveyance is direct rather than indirect such as by telemetric equipment or remote controls.



Minimum Pressure Regulator. Valves are reversed from usual design and diaphragm is controlled by inlet pressure. As inlet pressure decreases valves close.

The direct method of control or the use of pressure or flow of gas at the regulator location as the actuating force for a regulator is the most common. After selection of the location careful attention and periodic checking of the pressure setting will provide more economical operation of the distribution system. A recording gauge is usually maintained at the source of supply or on the outlet side of an existing regulator and possibly one or more gauges installed at least periodically at vital points. Selection of the location of the temporary recording gauge may be the result of previous experience with points of low pressures, a study of maps to secure mains at the greatest distance along the source of feed from the regulator or areas of small sized mains, observations of service or main crews, an analysis of consumer complaints and inventory or knowledge of where high demand consumers or concentration of numerous smaller consumers are situated, etc.

Provided with the field or design data and assuming a location has been selected determination of the method would depend upon the importance attached to pressure changes at any one point in the distribution system. For instance a system may be controlled by a regulator having a lock up of ten pounds which pressure would drop to nine pounds at the regulator outlet at the time of peak load while at the place of minimum pressure during peak loads the pressure may vary from a maximum of ten to a minimum of two to three pounds, and provide excellent consumer service. Some operators would not sanction a pressure drop from ten to two pounds and, therefore, would adopt the indirect method of control and require additional equipment on the regulator to increase automatically the outlet pressure during the peak load often to a value above the lock up pressure.

The direct method of control would result in greater differentials of pressure at the minimum pressure locations and as a result the lock up pressure would be set at a higher value than is necessary on properly functioning indirect controls.

On either system the lock up pressures would be maintained as low as possible and increased or decreased with seasonal or gradual changes in the peak load. The recording gauge on the regulator outlet will in the absence of a meter provide a comparative indication of load changes by slight changes in the differential between lock up and peak load pressures.

The term minimum pressure on the distribution system should not be interpreted as pressure so low as to interfere with consumer service. On a distribution system having no automatic controls the pressure at the source of supply may be manually maintained by compressors or shut off valves. Where no controls exist on a system and a study is to be made to determine the method and location of regulator the procedure would also be as explained above which assumed an existing but insufficient method of control as there will always be a drop of pressure between the source of supply and the

(*Continued on page 66*)

Index To Advertisers

Alpha Lux Co., Inc.	55	Lattner Mfg. Co., P. M.	60
American Gas Association	36	Lavino & Co., E. J.	59
American Gas Products Corp.	—	Minneapolis Honeywell Regulator Co.	47
American Meter Co.	5	Mohawk Asphalt Heater Co.	66
American Stove Co.	38	Mueller Co.	67
Andale Company	57	National Tube Co.	13
Barber Gas Burner Co., The	61	Patrol Valve Co., The	49
Bartlett Hayward Co.	—	Phillips, Alfred I.	61
Boone County Coal Corp.	—	Prestful Corpn	61
Byllesby Engineering & Management Corp.	59	Pittsburgh Equitable Meter Co.	—
Cast Iron Pipe Research Ass'n.	8	Reynolds Gas Regulator Co.	53
Chace Valve Co., W. M.	59	Robertshaw Thermostat Co.	Front Cover
Chaplin-Fulton Mfg. Co.	59	Roots-Connersville Blower Corp.	55
Connelly Iron Sponge & Governor Co.	65	Safety Gas Main Stopper Co.	61
Connersville Blower Co.	55	Semet Solvay Engineering Corp.	14
Cooper Bessemer Corp., The	7	Servel, Inc.	36
Cruse Kemper Co.	55	Smith, P. C.	61
Dresser Mfg. Co., S. R.	—	Sprague Meter Co.	Fourth Cover
Electrolux Refrigerator Sales Inc.	36	Stacey Bros. Gas Construction Co.	—
Gas Purifying Materials Co.	53	Stacey Manufacturing Co., The	—
Improved Equipment-Russell Engr. Co.	65	Standard Gas Equipment Corp.	44
Isbell-Porter Co.	65	Superior Meter Co.	51
Hays Mfg. Co.	61	United American Bosch Corp.	42
Hotel Montclair	51	United Engineer and Constructors Inc.	4
Johnson Gas Appliance Co.	53	United States Pipe and Foundry Co.	2
Kitson Co.	61	West Gas Improvement Co.	—
Lambert Meter Co.	57	Williams & Saylor Inc.	57

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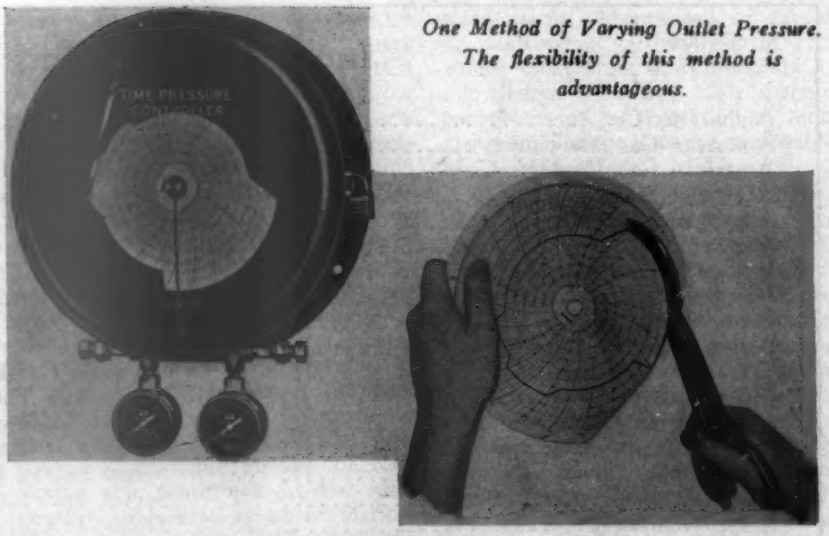
ends of the mains whenever there is a flow of gas. The minimum pressure on an uncontrolled distribution system may be higher than the lock up pressure of controls after installation but with controls the location of the minimum pressure will remain unchanged unless conditions were altered materially between the period of survey and installation of a regulator.

As a system enlarges the number of regulators increases, somewhat complicating the interpretation of each particular recording gauge chart and will require more experience and field checking for determining proper regulator settings but usually some one regulator will respond more sensitively to the minimum pressure and simplify daily routine study of charts.

The telephoning of pressures observed on indicating gauges to the regulator station is used although less satisfactory than recording gauges. The human element is an important factor in this system as the routine observation of an indicating gauge when secondary to the regular occupation leads to carelessness or the tendency to assume that the gauge reads normal. Providing an inspector whose primary duty is the reading of such indicating gauges is ordinarily impractical as only one gauge could be observed at the time of peak load, it being impossible to travel from one location of low pressure to another during the short period that minimum pressures occur. The regulator station operator would be expected to increase or decrease flow pressures, necessitating additional manual operation which is to be avoided whenever possible.

The use of telemetric gauges for the conveyance of pressure information from vital points to the regulator station has gained more favor in low than high pressure distribution although used on high. The pressure as received may be observed by a regulator station attendant, recorded or used to actuate the regulator. Recording is preferable to observation as it provides a check on the reasons for changing the regulator operation by the attendant and also indicates any changes which might otherwise go unobserved because of their momentary character or occurrence during a period when the attendant was necessarily absent from the gauges.

Strictly manual operation is provided by having an ordinary shut off valve installed at the source of supply which can be manually operated by an attendant. Manual operation has all the disadvantages of the human element as previously mentioned. There is also the possibility that in the off peak periods when the shut off valves are practically closed foreign matter may lodge in the slight opening completely stopping the flow of gas whereas with regulators should foreign matter tend to prevent the flow of gas the opening would automatically be increased.



One Method of Varying Outlet Pressure. The flexibility of this method is advantageous.

While the capital investment is low for a shut off valve required for manual operation the attendance necessary is costly and soon offsets the advantage of low investment unless continuous attendance is maintained at the source of supply and the attendant has considerable free time. The manual system may be more satisfactorily used on high than on low pressure distribution as considerable variations in the pressures would not affect consumer service especially if the pressures were allowed to build to the point where the storage in the lines would provide for momentary high demands.

Constant outlet pressure regulators are the most commonly used and within certain limits provide a uniform pressure at the outlet of the regulator. A refinement more frequent on industrial installations than distribution systems is the addition of automatic boosters which depend on either pressure or flow of gas to automatically increase the outlet pressures with increased rates of demand.

The time element is occasionally included in the operation of regulators by having clocks control the

(Continued in May Issue)

Safety Pilots—Their Design and Performance

(Continued from page 48)

ferred to. A circular bimetallic disc is stamped into a partly spherical surface and its bimetallic properties under influence of heat cause the disc to maintain its opposite position of curvature and hold the valve open. Travel of the center of the disc between its two positions of curvature is sufficient to permit direct connection with the valve which assumes a position which depends on whether the disc curvature is concave or convex.

Figures 9 and 9a illustrate a bimetallic snap disc type safety device. It will be observed that no auxiliary pilot regulators or the amounts of weights on the weight hanger. Only the unusual distribution systems would require complicated refinements in place of the simple methods of control.

(Continued in May Issue)

H-11100 Straightway Iron Body, Brass Plug Gas Stop — galvanized or black
H-11102 Straightway Iron Body, Brass Plug Stop with lock wing—galvanized or black
H-11076 Straightway Dial Stop
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